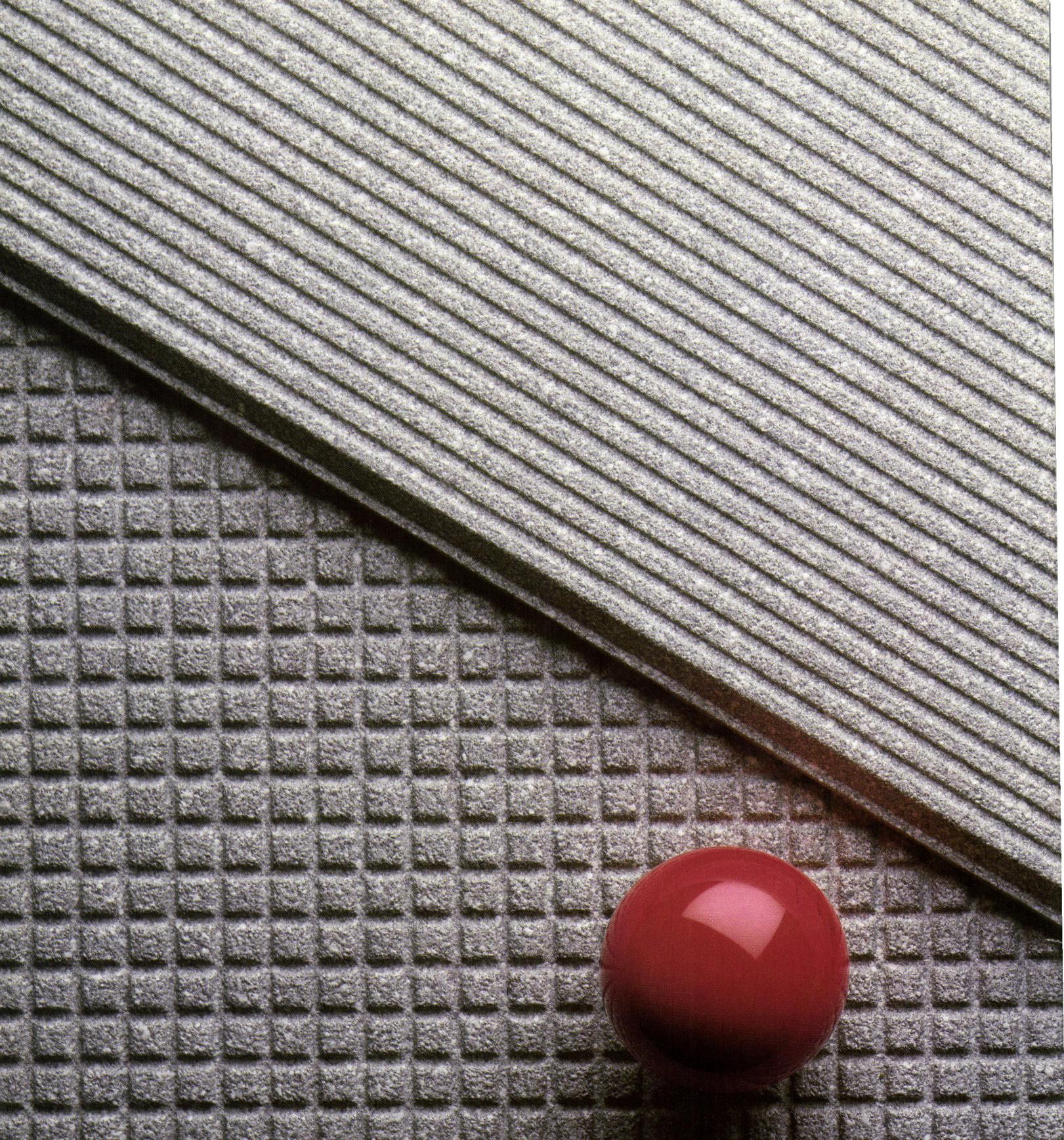


ARCHITECTURE

Incorporating Architectural Technology July 1988 Five Dollars





NEW CEILING FINISHES

Multitonned. Finely textured. Three finishes. Available on five Artran® patterns. For our brochure, call 1 800 233-3823 and ask for Ceiling Finishes.

Telephone: 919-294-1443

2339 25

CUSTOM BOOK BINDERY
TYPE OR PRINT CLEARLY

NAME

HENRY JOHNSTON
3967 C MARKET ST

CITY

WILMINGTTON
NC

ZIP

28403

PHONE

(919)-763-5739

BINDING STYLES

<input type="checkbox"/> CUSTOM JOURNALS	<input type="checkbox"/> INDEX	<input type="checkbox"/> Front	<input type="checkbox"/> Back
<input checked="" type="checkbox"/> Bind title page/contents front			
ADVERTISEMENTS	►	<input type="checkbox"/> REMOVED	<input checked="" type="checkbox"/> BOUND IN
COVERS	►	<input type="checkbox"/> REMOVED	<input checked="" type="checkbox"/> BOUND IN
		<input type="checkbox"/> BOOK/PAPER BACK	<input type="checkbox"/> THESIS
		<input type="checkbox"/> FRONT LETTERING	<input type="checkbox"/> FAMILY BIBLE
		<input type="checkbox"/> HAND BIBLE	

PREVIOUS BOUND BY

CUSTOM BOOK BINDERY

MATERIAL COLOR NO.
598

NEW BINDING

FOR CUSTOM BOOK BINDERY

COATING COLOR

GOLD

WHITE

BLACK

LINE LETTERING

TITLE

AIA
JOURNAL

*Johnson
1988*

CBB

VOL. NO.(S)

MONTHS:

12

YEAR:

1988

AUTHOR:

PERSONAL IMPRINT:

BINDERY COPY BINDERY COPY CUSTOMER COPY
White Canary Pink

ARMSTRONG
CONTRACT
INTERIORS

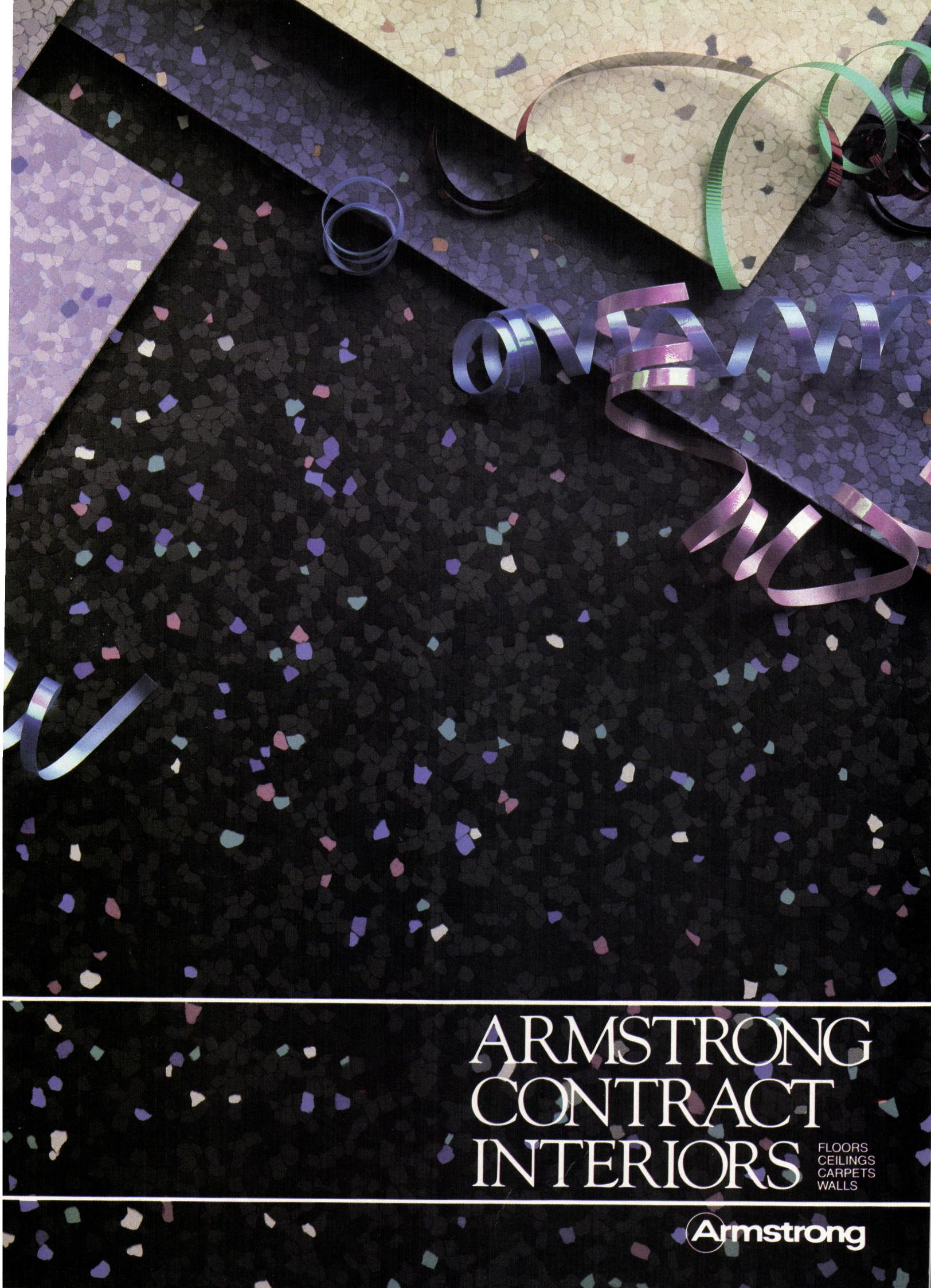
CEILINGS
CARPETS
FLOORS
WALLS

Armstrong



NEW VINYL FLOORS

Random chips of color contrast with a classic background.
Ten colorways. Rolls 6' wide. For our brochure,
call 1 800 233-3823 and ask for Suffield.TM
Circle 5 on information card

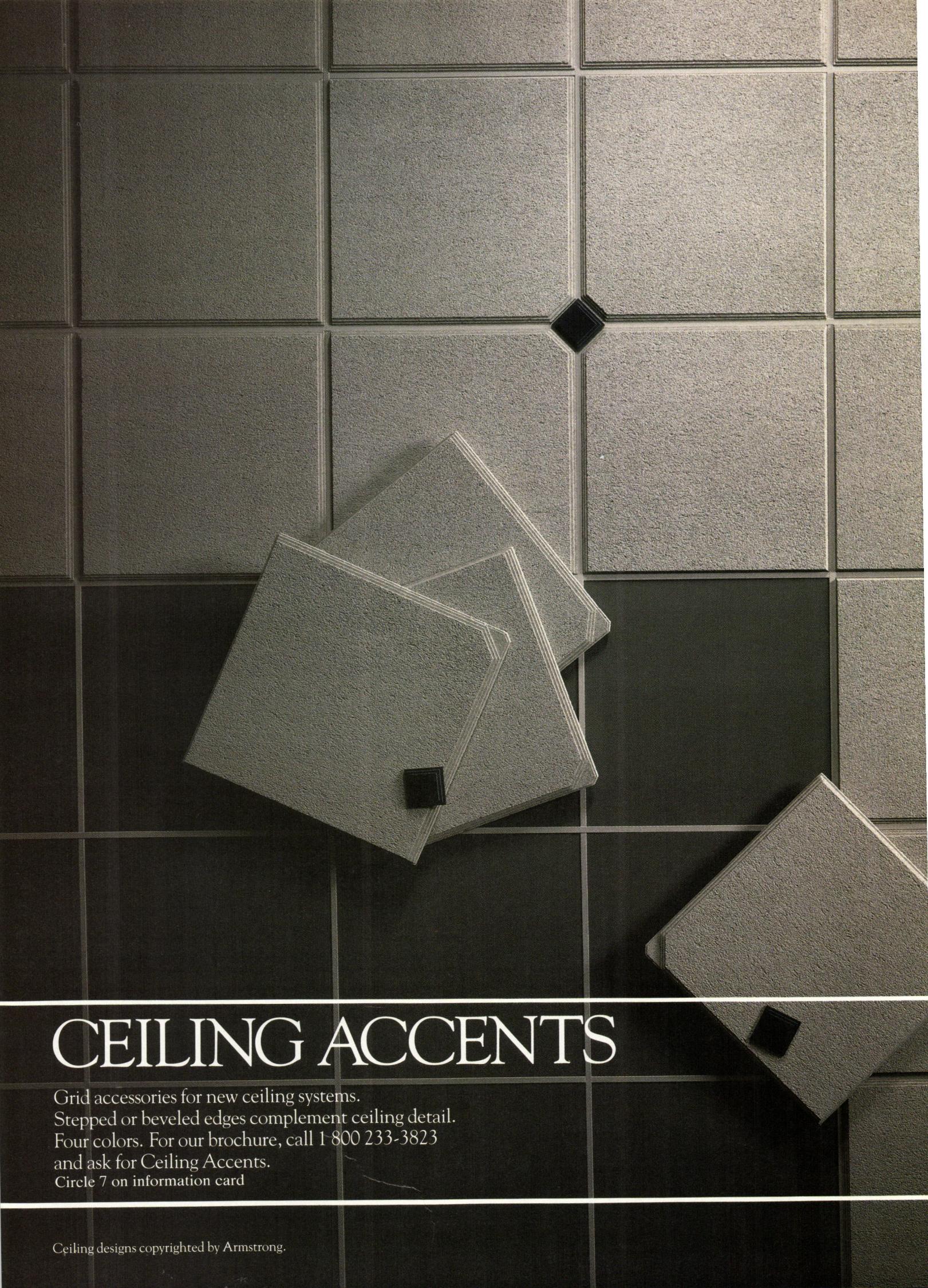


OPEN

ARMSTRONG
CONTRACT
INTERIORS

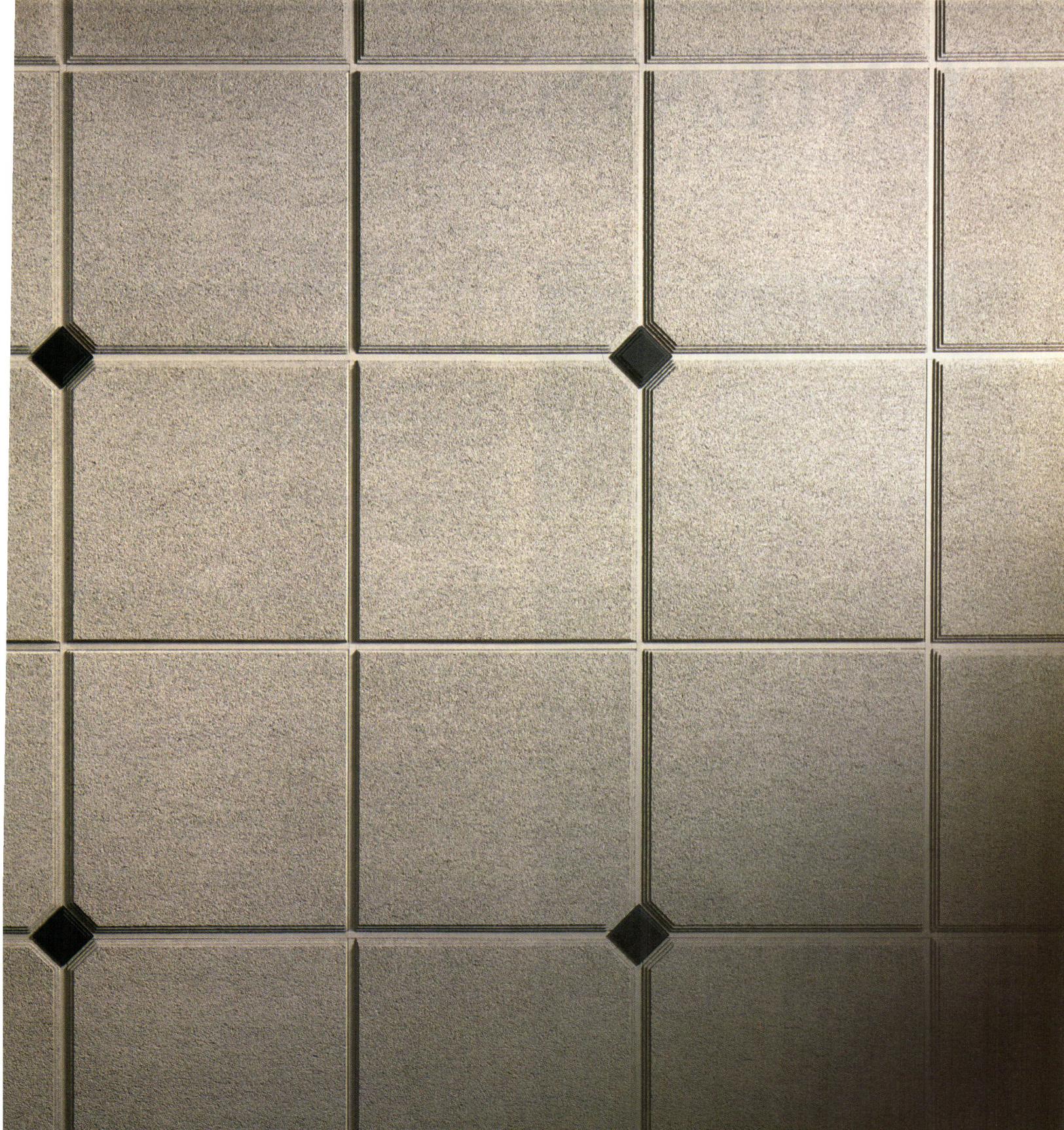
FLOORS
CEILINGS
CARPETS
WALLS

Armstrong



CEILING ACCENTS

Grid accessories for new ceiling systems.
Stepped or beveled edges complement ceiling detail.
Four colors. For our brochure, call 1 800 233-3823
and ask for Ceiling Accents.
Circle 7 on information card



ARMSTRONG CONTRACT INTERIORS

CEILINGS
CARPETS
FLOORS
WALLS

Armstrong

A little daring. A little dash. Perhaps a little polish. Or maybe just a splash of rich, warm bronze.

With Haws drinking fountains and electric water coolers as your design tools, anything is possible.

Discover the clean, traditional look of white polymarble; the contemporary elegance of High Polish Bronze; or the enduring beauty of stainless steel. One look through our new catalog will fire your imagination—and also show you why so many architects and engineers are bubbling with excitement about Haws.

For more information on the world's most popular line of drinking fountains and water coolers, contact your Haws representative, see Sweets section 15455, or phone the Sweets BUYLINE®.

Haws

THE EXCITEMENT IS BUILDING

Model 1075

Featuring the smooth look of china in a tough, vandal-resistant polymarble fountain that is wheelchair accessible.

Model HWCF8RF

Handsome as well as practical, this model is available in a choice of finishes, and as a "hands-off" sensor-operated unit (Model HWCF8HO).

What This Project Needs Is A Little Excitement.



Model HCBF7HO

One of our exclusive "hands-off" sensor-operated electric water coolers, offering the ultimate in barrier-free convenience.

Model 3180

Specifically designed to master the problems of beach and park application, this model features a large built-in sandtrap to eliminate clogging.

Model 1116

Designed in High Polish Bronze with a brown and cream swirl polymarble receptor, this fountain will add warmth and sophistication to any decor.

Haws Drinking Faucet Company
P.O. Box 1999, Berkeley, CA 94701
415/525-5801 Telex: 336358
Haws AG/Kirchberg/Bern, Switzerland
Circle 11 on information card

© 1987

Performance Without Sacrifice

Engineered for extraordinary performance. Designed for exceptional aesthetic appeal. The Classic series of surface mounted door closers from Rixson-Firemark.



- The clean, uncluttered geometric line...
- cold, rolled steel arm...
- durable metal cover for uncompromised plated finishes...
- A precision mechanism characterized by cylinder tolerances held to .0005 of an inch.

Indeed, this is the Classic surface mounted door closer.



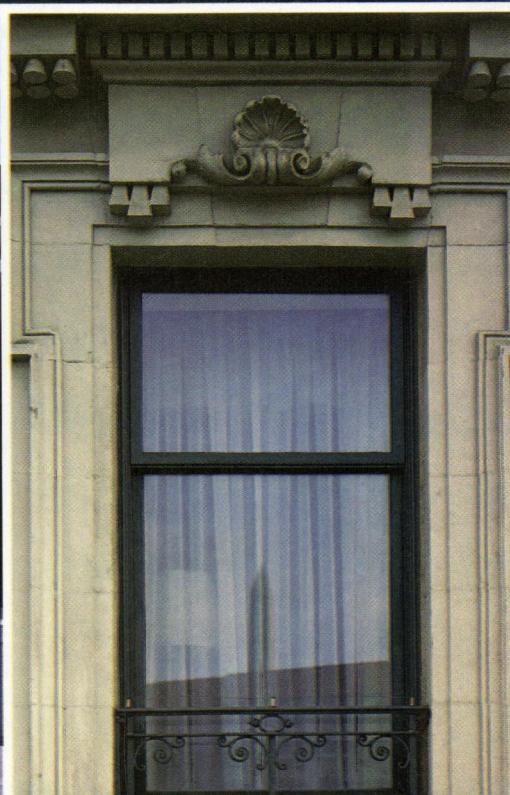
RIXSON

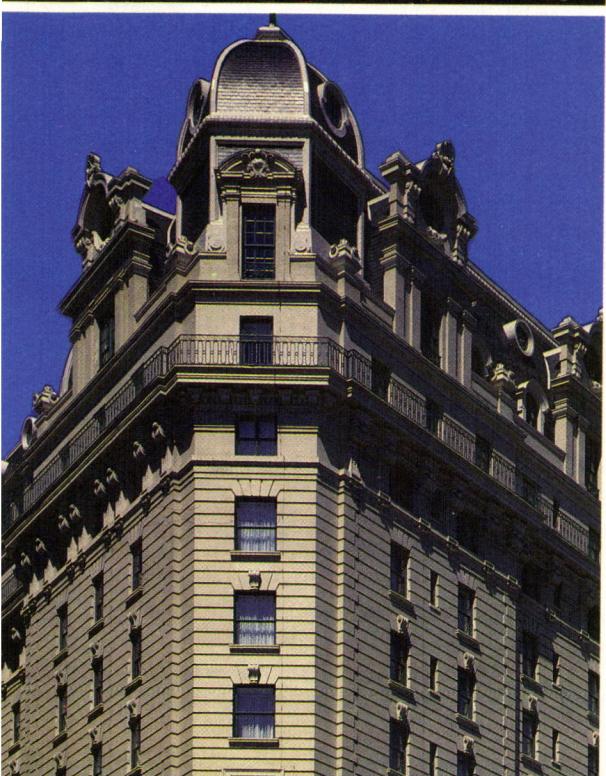
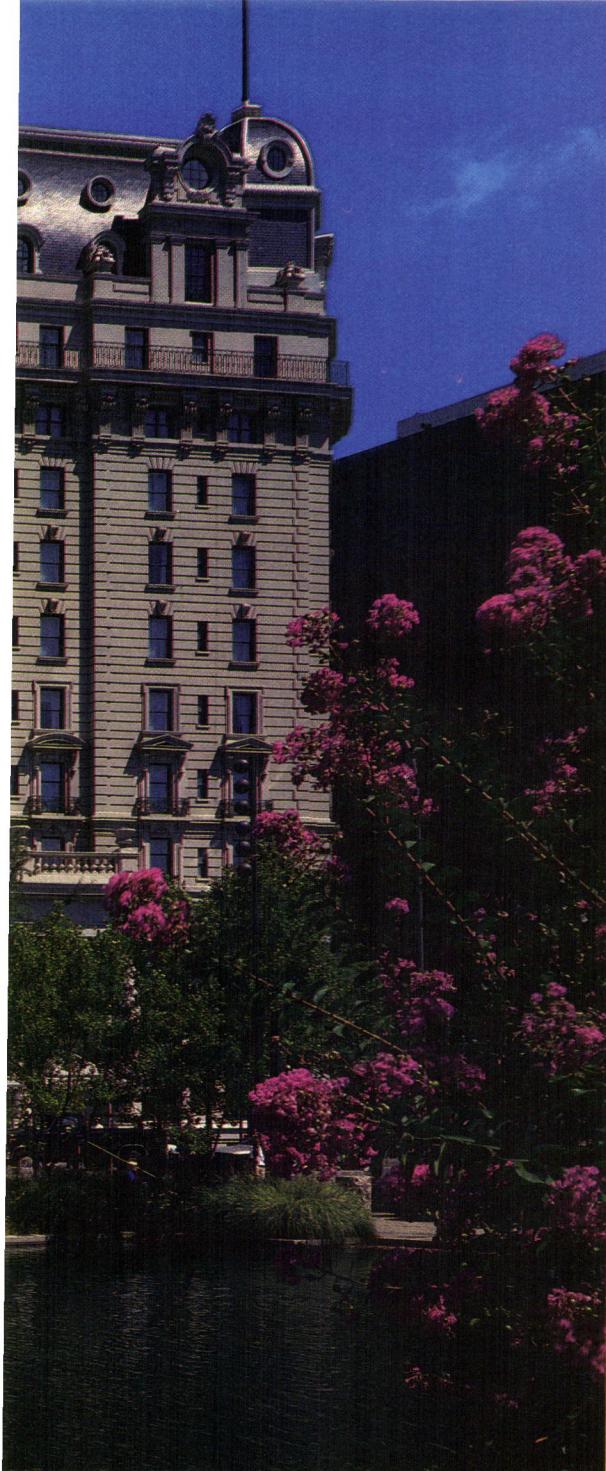
RIXSON-FIREMARK

A MARK IV INDUSTRIES COMPANY

9100 West Belmont Avenue, Franklin Park, Illinois 60131 (312) 671-5670

Circle 13 on information card





Washington's famous Willard Hotel is a masterful marriage of the classic and the new.

And a masterwork of custom Pella Windows.

It had been called the Unofficial White House. Crown Jewel of Pennsylvania Avenue. Center of Washington's political and social life. Then, in 1968, this enormous Second-Empire landmark closed. For 15 years, what remained of ebullient plaster cornices, intricate Italian floor tiles, scagliola columns and fine moldings swelled in steamy summers and shrank in winter chills.

Now the historic Willard Hotel has been gloriously restored as the Willard Inter-Continental. Matching it in form, detail and spirit, a new office and retail infill complex has been designed as a series of stepped pavilions. It stands behind a colonnaded plaza to give Henry Hardenbergh's 1901 hotel center stage.

For this labor of love, nothing but the best would do. And, at the architect's insistence, that meant 1,675 custom Pella windows. For historic fidelity outside, wood beauty inside, and a lifetime of low-maintenance Pella quality.

Custom color, custom profile

Because of the hotel's historical significance, windows had to meet National Park Service approval for design, exterior profiles and installation details, with exterior cladding and vinyl jamb liners duplicating the original green trim color. Pella custom-finished the aluminum cladding in baked enamel that needs no painting.

Exterior glass-to-masonry profiles of the new units matched the original with special sash dimensions, various exterior jamb extensions and perimeter trim extrusions which Pella modeled after pieces of the original wood trim. This also compensated for endlessly variable masonry opening sizes.

Pella. The significant difference in windows.

Willard Inter-Continental
Owner/Developer
The Oliver T. Carr Company, Washington DC
Architect
The Office of Vlastimil Koubek, Washington DC
General Contractor
George Hyman Construction Company, Bethesda, Maryland

Circle 15 on information card

Pella designed and built 1425 Traditional Double-hung (TD) units with insulating glass, including arch-tops with integral, clad muntins. Enormous fixed windows with venting casements above them match original 7x14' double-hungs. From go-ahead until delivery, all window design, testing and manufacture took only seven months. The Pella distributor installed all windows in floor-by-floor sequence, right on schedule. A great benefit from a construction management standpoint.

New Large Double-Hung Window

About 300 openings at the Willard required nine-foot-tall double-hung windows in varying widths, with full Pella performance and structural integrity. The resulting Large Double-hung (LD) windows are now available in custom dimensions for your commercial projects. Clad LD windows are especially appropriate for landmark buildings, with authentic-looking aluminum exterior muntins and Pella's rotating sash for cleaning from indoors.

Your Pella distributor can tell you more. For information, look for Pella in the Yellow Pages under "Windows". Call Sweet's BUYLINE or see Sweet's General Building File. Ask about our Pella CAD library. Or send the coupon.

Please send me the latest literature on Pella for replacement and new construction.

Name _____

Firm _____

Address _____

City _____

State _____ Zip _____

Telephone _____

This coupon answered in 24 hours.

Mail to: Pella Windows and Doors, Commercial Division, Dept. T-4468 100 Main Street, Pella, IA 50219. Also available throughout Canada.
© 1987 Rolscreen Co.



EVENTS

July 1-17: Exhibition entitled "Civilized Life," featuring works of 21 contemporary artists and architects, Lexington, N.Y. Contact: Judith Dupre, 428 Greenwich St., New York, N.Y. 10013.

July 31-Aug. 3: National Wood Window & Door Association Summer Management Conference, Quebec City, Quebec. Contact: NWWDA, 1400 E. Touhy Ave., Suite G-54, Des Plaines, Ill. 60018.

Aug. 4-5: Training Program on Downtown Design, Taunton, Mass. Contact: Vicki Onderdonk, National Main Street Center, National Trust for Historic Preservation, 1785 Massachusetts Ave. N.W., Washington, D.C. 20036

Aug. 4-6: Society of Environmental Graphic Designers National Conference, Bloomfield Hills, Mich. Contact: Sarah Speare, SEGD, 47 Third St., Cambridge, Mass. 02141.

Aug 7-11: Illuminating Engineering Society of North America Annual Conference, Minneapolis. Contact: IES, 345 E. 47th St., New York, N.Y. 10017.

Aug 8-18: Course on Effective CADD Production Management, Durango/Purgatory, Colo. Contact: Phillip M. Bennett, Dept. of Engineering Professional Development, University of Wisconsin-Madison, 432 N. Lake St., Madison, Wis. 53706.

Aug. 24-27: "Worldesign 88," Industrial Designers Society of America International Conference and Exhibition, New York City. Contact: Kristina Goodrich, IDSA, 1142-E Walker Rd., Great Falls, Va. 22066.

Aug. 29-30: Course on Technical Writing, Denver. Contact: David Thomas, ASME Professional Development, 345 E. 47th St., New York, N.Y. 10017.

LETTERS

Slave Labor? I am prompted to write this letter after a recent conversation with a fellow student. The summer season is upon us, for which students searched near and far for summer jobs. Summer jobs usually imply a chance to make some money, defraying the cost of education while gaining experience that is not available in an academic setting.

My concern relates to the blatant slavery practiced by some architectural firms. "Slave" is used here not as someone owned or forced but as "a person completely controlled by a specified influence, emotion" (*American Heritage Desk Dictionary*). Firms are taking undue advantage of students and young architects. My friend from school was offered a job by a famous East Coast firm for the amazing compensation of zero dollars and zero cents. What more unethical practice is possible?

I have for years listened to the complaints of architects about poor compensation for their labors compared to other professions. I hear instructors perpetuate the romanticism of being overworked and underpaid. We have all heard the com-

plaints, and yet architects treat their own worst of all. Must one generation take revenge on the next for past injustices? The situation is exacerbated by those in the best position to pay, as they are the ones taking the most advantage by misplaced right of name and popularity. I personally know and have worked for architects who make a comfortable living. Most work hard, but that is not out of the ordinary. This country is based on the notion that hard work is rewarded. There is no excuse for not paying an honest wage for an honest day's work. Have the consciences of architects become like their buildings—made of stone and concrete?

Most of us get into this profession for reasons other than money, but the money is a necessary element of the business. Not paying employees is an insult to all architects, saying to colleges and clients that our efforts are not worth monetary compensation. The respect and monetary rewards architects seek in the business world will not be forthcoming until respect and money are shared among the ranks.

Employers must recognize that staffers cannot do their best work worrying about where the next meal comes from. A "volunteer" will likely have to work another job to keep food on the table and a roof overhead. To maintain this kind of energy level takes away from one's productivity. Where is the time for repose, for the mind to assimilate and expand on the day's lessons? Universities show a similar problem with the workload students are expected to maintain, causing a survival mode instead of a nurturing atmosphere. The best work can only be accomplished when one has the time, energy, and money to participate in all aspects of life, in the office and out.

I must also remonstrate to those young architects who line up for a chance to work for a "name" architect, foregoing a salary for the supposed experience they gain. Experience is a necessary commodity for the development of anyone wishing to do better than average design work in this field. I would not argue that knowledge cannot be gained from well-known architects. But take note, the quality of one's work does not depend on, nor is it guaranteed by, which school or architect one is associated with. The facility gained from school or work is what each individual makes of it. As with any learning, the best teacher is most often the individual who quietly goes about his or her business not seeking the limelight. My own insight has been greatly enhanced by such a person, and I was paid appropriately.

The famous architects are not the only offenders. I have seen many young architects work 60-hour weeks without overtime or equal time off because it is just expected of them to put in the hours. Programs supported by universities, under the guise of gaining practical experience, farm out students to local architects where the time is too often spent cutting cardboard mod-

els. The student not only works for no pay but must put out hundreds of dollars for the college credit.

This outrageous lack of ethics is a blight on the profession. Slavery was outlawed in this country at a cost of thousands of lives more than 100 years ago. As Lincoln said, "It is the eternal struggle between two principles, right and wrong throughout the world. . . . It is the same spirit that says, you toil and work and earn bread, and I'll eat it. . . . As I would not be a slave, I would not be a master." I do not make light of history or make melodrama. I speak of the same principle of right and wrong. I should hope that the nobility of this profession that architects love to cling to will be embraced by each individual so that each will behave as a man or woman and not as a tyrant leaching off the labors of others.

Sean J. Bujold
Master of Architecture student
University of Colorado at Denver

CADD Night Work: I read with interest your continued CADD evaluation in "New Faces in Medium-Priced CADD" (Feb., page 103). In regards to the report on SKOK's Drawbase, I must comment on the very last sentence: "SKOK cities a 3 million-square-foot building with no two floors alike—an update of its data probably would take enough time for an architect to grow a coffee tree from scratch before making and drinking the coffee."

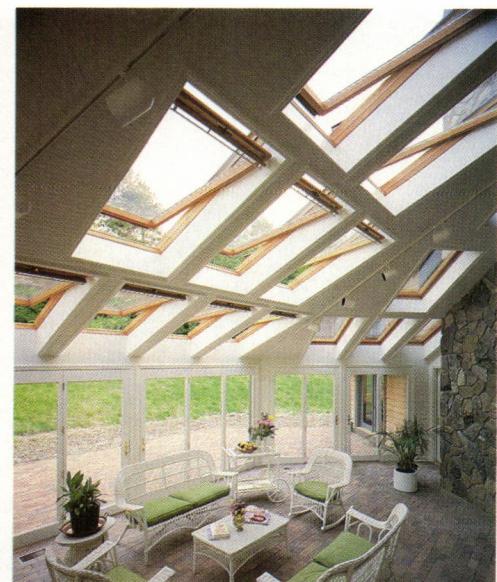
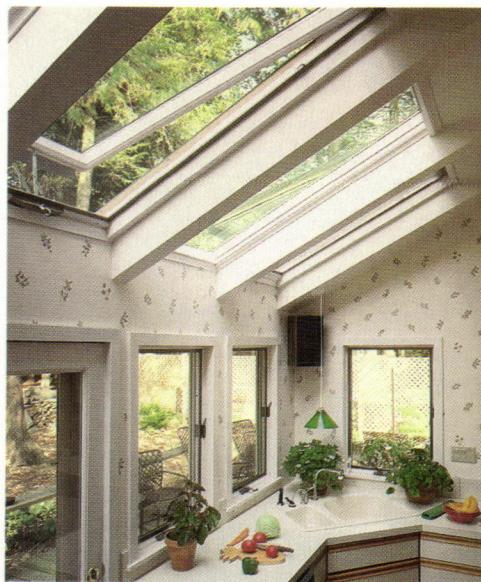
The building SKOK referred to was one of our firm's projects. Indeed, we did track an enormous amount of data about this multi-use building: numerous types of area calculations, unit and bath types, windows, etc. Of course, we did not have the luxury of the time alluded to by Mr. Voosen! Instead of watching trees grow, we harnessed the power of our CADD system.

The key issue here is twofold: file size minimization and computer optimization. While we *think* in terms of final sheets, we *draw* on CADD in modules. This means keeping our file sizes small so that we can draw and modify rapidly. For example, the elevations for this building consisted of more than 100 files. We developed macros to then pull all the files together and generate plot files. Likewise, macros generated the ever-changing data extraction reports (information on more than 5,000 windows in this case). By setting our macros in motion just before we leave the office at night, we make the computer do laborious and time-consuming tasks while we rest.

Cynthia M. Schubert
Moshe Safdie & Associates
Boston

Clarification: The New York City zoning map—used to issue a permit for a 31-story building by developers who were later ordered by the courts to remove 12 floors—was ambiguous, says a local citizens' group, and not erroneous as stated on page 32 in the April issue, and the boundary, although unmarked, did not actually change.

Multiply the Possibilities



VELUX® prefabricated gang flashings let you group VELUX roof windows and skylights in almost any combination quickly and easily.

The precision engineering of VELUX gang flashings allows weather tight installation without the need for caulk or mastic. This means no weather delays, mess, and less chance of callbacks. In addition, VELUX gang flashings are readily available nationwide in a wide range of standard sizes to meet your building requirements and your deadline.



For more information about VELUX Gang Flashings, send for a free copy of our VELUX Gang Flashing brochure plus "The Complete Guide to Roof Windows and Skylights", and a price list. Your inquiry will be answered within 24 hours.

A788

Name _____

Firm _____

Address _____

City/State/Zip _____

VELUX-AMERICA INC.
P.O. Box 3268
Greenwood, S.C. 28648

VELUX-CANADA INC.
16817 Hymus Blvd.
Kirkland, P.Q. Canada H9H 3L4

Sales, Warehousing and Service Nationwide

VELUX®

The world leader
in roof windows and skylights.

Circle 17 on information card

©1988 VELUX-AMERICA INC.
©VELUX is a Registered Trademark.

SMART • SECURITY • SOLUTIONS!



Shearlok models feature a proven electro-magnetic shear design which prevents the lock from being pulled apart before the magnet is released.

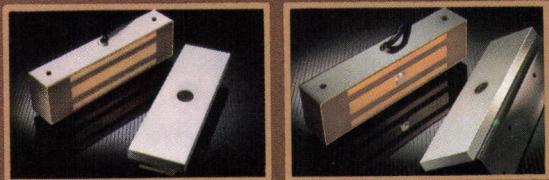
Von Duprin offers a full line of electro-magnetic locks for security and safety... The Shearlok 700 and 1500 and the Dynamag 1200. They assure tested holding forces of up to 1500 pounds, yet release immediately when the lock power is off.

The locks can be controlled by such sources as key switches, remote security consoles, card readers, etc., smoke or fire detectors can be used for unlocking where life safety are considerations.

These patented locks hold securely when locked and have no moving parts which can malfunction and prevent the door from opening. Models are available with an exclusive status sensor that detects full holding force.

Von Duprin Electro-magnetic Locks are UL listed "Auxiliary Locks" and

"Release Devices", and can be mounted on approved fire doors. Available in a variety of models suitable for mounting on any door, whether new or retrofit construction... concealed in frame or floor, inswinging or outswinging, direct hold or Shearlok.



To learn more about these Smart Security Solutions, write or call today! Von Duprin, Inc., 2720 Tobey Drive, P.O. Box 6023, Indianapolis, IN 46206 (317) 897-9944.

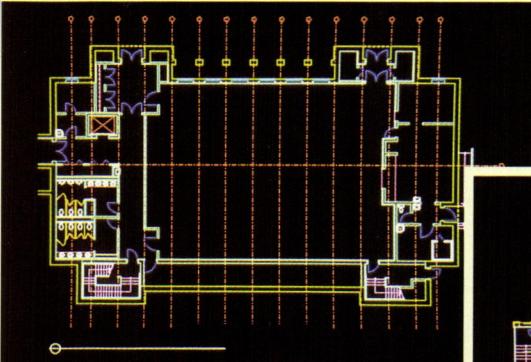
VON DUPRIN

Part of worldwide Ingersoll-Rand

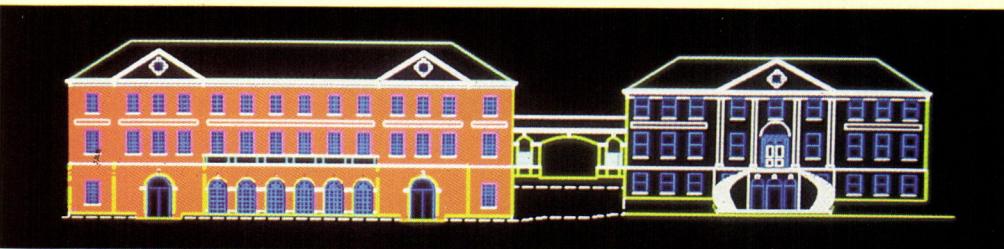
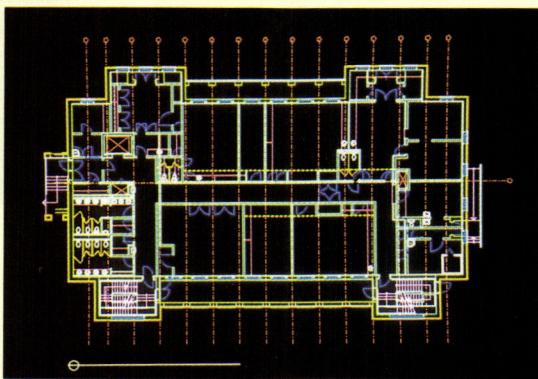
In less than a year... #3 in PC CADD

How MicroStation works for Dennis Yates Associates

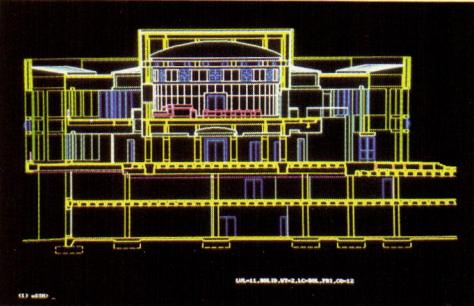
Dennis Yates Associates is an architectural firm in Concord, N.C. Using MicroStation PC, they designed the Governmental Center for Cabarrus County in Concord and also the Will Young Building, an educational and fellowship facility for the First Presbyterian Church.



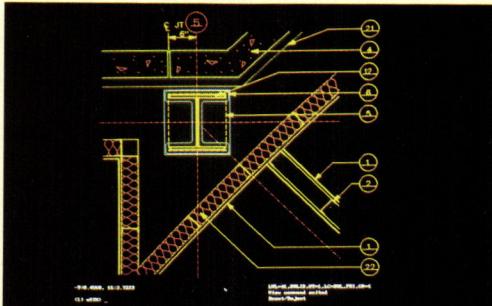
Floor plans of the two levels of the Will Young Building are shown using MicroStation PC's reference file feature.



Representation of the Will Young Building attached to the existing building



Building section of the Governmental Center, designed with MicroStation PC



Column details of the Governmental Center, designed with MicroStation PC

Since its introduction by Intergraph less than a year ago, MicroStation has jumped to #3 in PC CADD sales worldwide. Here's why:

Powerful graphics

A true 3D PC CADD package, MicroStation gives you the power of hundreds of commands to help you enter, manipulate, view, and store a wide variety of designs.

Speed and ease of use

One of the fastest PC CADD solutions available, MicroStation is extremely easy to use. It was created for design and drafting — even large-scale, production-size files — without additional hardware.

Flexibility

Up to 32 reference files can be attached to the active file for scaling, rotating, or clipping. MicroStation features dynamic update which allows you to see all the characteristics of the element before placement — minimizing errors and time-consuming corrections.

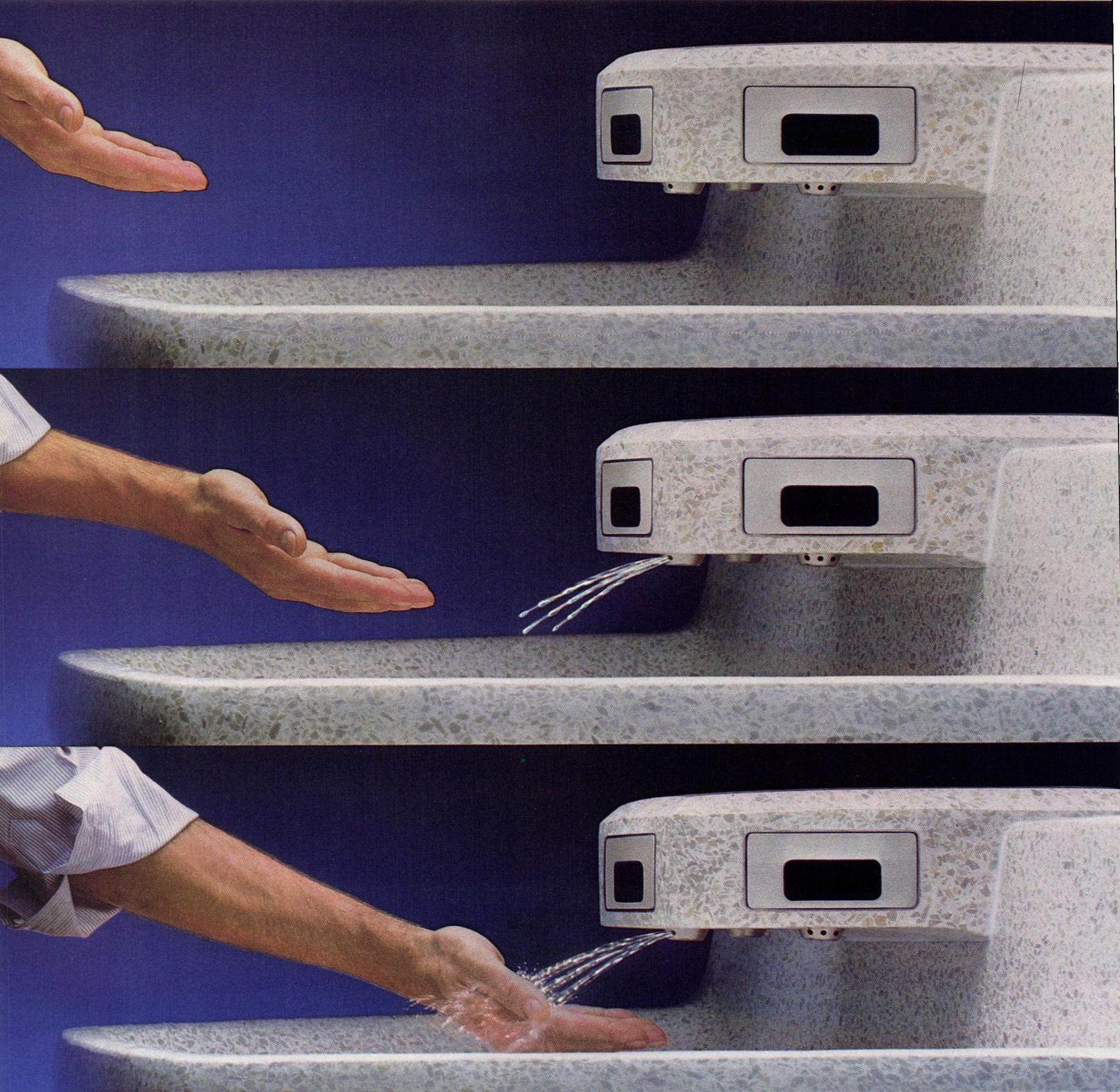
Growth

MicroStation is based on the same core graphics software as Intergraph's VAX-based applications. Designs created with MicroStation are compatible with Intergraph's VAX and UNIX applications — providing an inexpensive entry into our broad range of systems without the usual file translation problems of other software packages.

Quality. Reliability. Performance.
See for yourself. Call for more information or for a referral to the MicroStation reseller or education center nearest you.

INTERGRAPH

In the U.S., call 800-345-4856.
In Alabama only, call 800-345-0218.
Outside the U.S., call 205-772-1800.



METERING IS NO LONGER A TOUCHY SITUATION. INTRODUCING THE BRADLEY ACCU-ZONE METERING CONTROL.

Before today, metering control was a necessary evil. But that was yesterday.

Now you can have precise metering and day-to-day reliability with Bradley ACCU-ZONE™ no touch metering control. ACCU-ZONE control uses innovative, patented technology to provide infrared activation that turns the water on when the user wants and off when you want —when the user's finished.

Working in tandem with the infrared activation, ACCU-ZONE con-



The ACCU-ZONE advantage—two zone-focused infrared transmitting beams create a large detection zone confined strictly to the bowl.

trol uses a proven solenoid valve which has been tested to over a million cycles, ensuring long-term reliability.

Not only is ACCU-ZONE control a better way to meter, but it will help you solve washroom design problems like hygiene concerns, barrier-free code compliance and even vandalism.

So, if there's a metering specification in your future, turn a touchy situation into a quick solution—with Bradley



Multi-Fount™ Washfountains and Futura™ Faucets with ACCU-ZONE control. Circle the reader service number for a free ACCU-ZONE brochure or contact your Bradley representative for a product demonstration.

Bradley
CORPORATION

We get the job done better.

P.O. BOX 309, Menomonee Falls, WI 53051.
(414) 251-6000



The Institute

New York City Plays Host to AIA's Largest Convention Ever



Oscar & Associates, Inc.

Eclectic might be the best word to describe this year's AIA convention in New York City. The official theme was "Art in Architecture," but the main speakers ranged from Mayor Edward Koch to public opinion analyst Louis Harris to science fiction writer Isaac Asimov. Addressing the convention theme, environmental artist Christo spoke about the strong relationship between his large three-dimensional works of art and architecture, and honorary convention chairman I.M. Pei, FAIA, described his varied collaborations with artists on major building projects.

In addition, the conventioneers participated in seminars and panel discussions on topics as diverse as computers, housing the homeless, architecture education, art, marketing, and design, while the Jacob Javits Convention Center's 160,000-square-foot exhibition hall housed a trade show comprising more than 500 booths featuring new products and technologies. The four-day convention drew more than 15,800 persons, the largest attendance for any AIA national convention.

In his keynote address, Asimov envi-

sioned a future world of livable underground cities and challenged architects to define what those subterranean communities might be like for our grandchildren. "If you do, I'll be satisfied that I nudged someone in that direction," he said.

Although Asimov said that the move to an underground society would be a long and slow development, he predicted a world "free of the tyranny of weather" as well as the "tyranny of the sun."

A resident of Manhattan, Asimov described the city's problems of overdevelopment. He said that, after 13 years in his 33rd-floor apartment, he has yet to look out the window and see no new buildings under construction—"each one taller than the one they tore down." Asimov criticized the increased urban density, saying that the streets have not grown wider but the population and traffic have increased steadily. "Universal gridlock will drive us willy-nilly down," he said.

An opposing view was expressed at the convention closing ceremonies when Mayor Koch denounced antidevelopment "ideologues and populists as idiots" who

would destroy the city's economic base. "This city had a debt of a billion dollars when I came into office," said the three-term mayor. If New York City had adopted the same kind of development moratorium that San Francisco has, it never would have overcome its debt, he speculated.

Koch opened his speech by saying that he was discarding his prepared nine-page text but encouraged the audience to write City Hall for a copy. Speaking off the cuff and later fielding questions from the floor, Koch addressed development, architecture, and urban planning, as well as the city's growing homeless population.

Koch drew applause when he said that the government should not be the "arbiter of taste." He added that it is not the city's role to tell private builders whether their proposed projects are good or bad or to dictate how they should be. "Should we as a city—aside from building design requirements—be involved in passing on the architecture itself? We have opted not to," he said.

Koch blasted the city's "small but vociferous group" that simply wants to end development in New York City via moratoriums. He also attacked those who believe that Manhattan's development boom would have occurred without the tax abatements and incentives he favored. "How do you deal with idiots like that?" he asked. "And some of them are on the City Council."

According to Koch, the projects that once created the biggest uproar ultimately have proved to be the "biggest glories." Citing the Empire State Building, the Brooklyn Bridge, and Rockefeller Center, Koch said these landmarks provoked loud outcries originally but have made New York "the city it is today."

In a swipe at Donald Trump and his controversial Television City proposal, Koch said, "Television City would have been successful if he'd brought in NBC. Rockefeller Center was successful in retaining NBC. So who's the better builder?"

In response to a question from the audience about homeless people in Grand Central Station, Koch expressed the opinion that such places are meant for travelers, whose rights should also be respected. "We thought it would be reasonable for the authorities to say, 'You can't stay here unless you're here for transportation.' Reasonable, rational people would come to that conclusion, right? Not the Court of Appeals. The Court of Appeals said, 'No. How do you know they're not there shopping?'"

continued on page 22

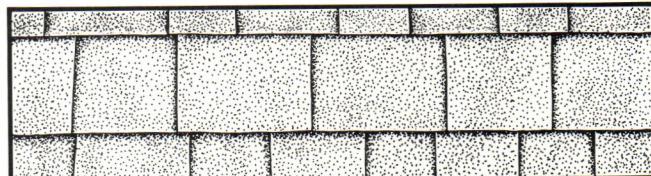


G-P SUMMIT® SHINGLES.
THE BUILT-IN SHADOLINE GIVES A MORE DEFINED,
A MORE REFINED, ROOF TEXTURE.

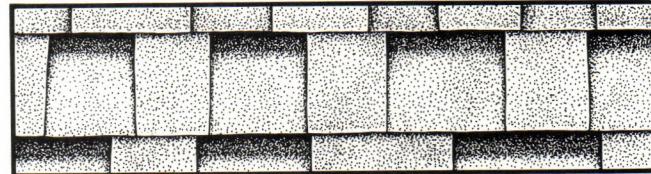
Georgia-Pacific Summit® and Summit® III laminated architectural shingles can make a real difference in the aesthetic appeal of your custom homes and light commercial projects. The built-in, three-dimensional shadowline creates a more richly textured, more highly defined roof surface.

**The Enhanced Shadowline Creates
Greater Visual Drama.**

Summit's distinctive profile is enhanced by a band of darker-colored granules that are strategically placed along each shingle's natural shadowline. That means the deep, handsome texture is "built-in" and always looks good. Yet, for all their good looks, G-P Summit shingles are tough and durable to last for years and years. In fact, our rugged Summit III fiberglass shingles carry a 35-year limited warranty¹ (Summit, 30 years) and UL Class "A" fire and wind resistance ratings.



Conventional architectural shingles lack Summit's deep, richly textured appearance.



Darker granules placed along each shingle's natural shadowline enhance the textural appearance of Summit.

Designed For Easy Installation.

Summit features built-in nailing lines for installation accuracy and seal-down adhesive strips on the bot-

¹ See warranty, available from Georgia-Pacific, for its terms, conditions, and limitations.

² Limited distribution of Summit west of the Rocky Mountains.

MORE POWER TO YOU! is a trademark, and Summit and Tough-Glass are registered trademarks, of Georgia-Pacific Corporation. ©1988 Georgia-Pacific Corporation. All rights reserved.



tom side of each shingle that eliminate the need to manually seal the first course to the starter strip. Plus, Summit shingles cover with only 72 pieces to the square—fewer than other architectural shingles. And being smaller than metric shingles makes Summit easier to handle.

For reroofing, Summit shingles can be applied directly over existing shingles—with little or no roof leveling or special furring strips required. And, because Summit shingles are available in a variety of handsome colors, you can satisfy the differing tastes of a larger number of customers.

G-P's Quality Roofing Products Give You More Power To Choose.

The Summit series of architectural shingles is just one of the many fine Georgia-Pacific roofing products available nationwide² through building material retailers. We offer one of the best selections of

roofing shingles and accessories available including single-ply architectural shingles and our popular Tough-Glass® 3-Tab shingles. Altogether, this broad line gives you more power to choose the roofing products best suited to your needs.

Give your next roofing project a more refined look. Write for more information on Summit and Summit III to: Georgia-Pacific Corporation, P.O. Box 2808, Dept. A-SS, Norcross, Georgia 30091.

Georgia-Pacific 
MORE POWER
to you!

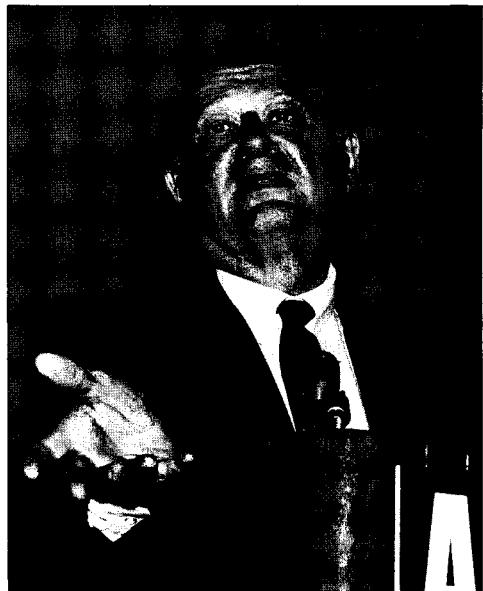
The Institute from page 19

In a series of convention programs addressing the "Art in Architecture" theme, artists and architects discussed issues of collaboration and the relationship between art and architecture. Pei expressed his personal delight in the convention theme, stating that "art and architecture are one."

Although architect and artist traditionally have been separate, Pei said, they must have a common language and work together: "My goal is to look for harmony in art and architecture."

In describing the search for a dialogue between art and architecture, Pei asserted that there does not have to be conflict between the two. He said he believes the artist should be consulted in the preliminary design process, but when asked at what stage, he replied, "Early, but not too early."

Pei said that the difference between working with artists of the older generation and young artists is that generally the older artists wait for the architect to design the space, whereas younger artists want involvement from the very beginning. He stressed that the architect must be the arbitrator in this type of collaboration.



"Without a sense of direction you have anarchy," he said.

Christo, the artist known for his massive fabric installations, said that his three-dimensional creations bear a strong relationship to architecture. However, Christo acknowledged a major difference. Unlike architecture, the "temporariness" of his creations is essential. "Each work blooms like a flower for only two weeks," he said.

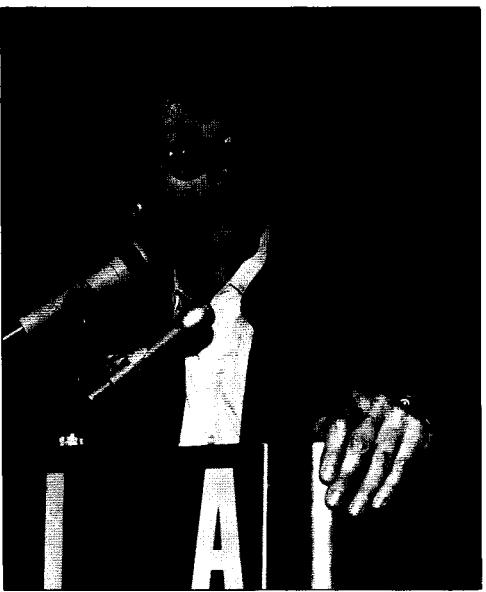
As part of the presentation, Christo showed drawings for "The Umbrellas," a work in progress that will culminate in the concurrent installations of two collections, each more than 10 miles long, of thousands of 20-foot-high umbrellas—one in Japan, the other in a valley north of Los Angeles. Christo estimated that the cost of "The Umbrellas" will exceed \$8 million, and like his previous works these installations will be partially financed through the sale of preliminary drawings of the project.

In describing his work, Christo said, "I come to a space to create a gentle disturbance. The space itself becomes part of the work of art."

All of the artists who participated in the roundtable discussions had been involved in successful collaborative projects with architects. However, several of the participating artists admitted experiencing difficulties in working with architects and clients and said they believed the key to success was working as equal partners from the inception of the project. The consensus of the group was that the word "in" instead of "and" in the convention's theme "Art in Architecture" was indicative of the attitude that architecture was primary and art was secondary or merely added.

Addressing the idea that some architects have "ego problems" in collaborating, Patri-

Three of the convention's numerous speakers. Clockwise from below: Environmental artist Christo; honorary convention chairman I. M. Pei, FAIA; and Mayor Edward Koch at the closing ceremonies.



cia Conway of Kohn Pedersen Fox Conway said that architecture is a team process by its nature and it is only natural to involve a number of disciplines. James Wines of SITE called for a return to the medieval concept of collaboration, which made no distinction between artist and architect.

Reinforcing this idea, Victoria Geibel, senior editor of the monthly *Metropolis*, said that a "true collaboration is when artist and architect create a whole so seamless" that no individual signature can be seen at the end. According to Geibel, participants in collaboration must be willing to cooperate, to accept diminished control, and to give up private vision for the public good.

Edward Larrabee Barnes, FAIA, said that a "possible weakness" of architects may be their inclination to see art as "ornament or decoration." In describing a collaborative effort with Claes Oldenberg, Barnes praised the pop art sculptor for creating large-scale and playful works of art that are extremely sensitive to the site. However, according to Barnes, architects should not "cringe" about a work of art that is a counterstatement to their own work. —LYNN NESMITH

Design Theme Seminars as Diverse as Today's Architecture

The AIA convention featured a number of programs and roundtable discussions that addressed trends in architecture.

In the seminar entitled "Star Architects and Designer Buildings," moderator Thomas Hine of the *Philadelphia Inquirer* explored the relationship between fashion and architecture and the ways architectural ideas are packaged and disseminated. Addressing issues of style and the trivialization of ideas, Hine asked, "What does a deconstructivist salt shaker look like, and is it necessary to have them?"

Participants also questioned the role and the influence of the critic and journalist in defining styles and creating labels. When asked if assigning a label kills, Joan Kron of *Avenue* magazine said, "When they shorten it to decon it certainly does."

Numerous comparisons were drawn between architecture and high fashion. According to Michael Sorkin of *The Village Voice*, architecture's fashion leader is the corporate office tower. Sorkin wondered whether the "marginal waxing and waning of lapels" is really any different from the changing "decorative drag that a building is decked out in."

All the panelists agreed that the line between architecture and fashion is becoming thinner. According to Joseph Giovannini of the *New York Times*, part of the problem is that architects are designing disposable consumer objects. A number of prominent New York architects design window displays for the department

continued on page 27



Ship us the best house design and we'll build it in Better Homes and Gardens.

Send us the best house design that uses wood in an innovative way and we'll build it. And feature it in *Better Homes and Gardens*.

We'll also award a check for \$5,000 to the winner of the top design. And give up to five merit awards of \$1,000 each.

You may submit homes whether they've been built or not. To a maximum size of 2,200 feet.

So mail this coupon back or call (206) 565-6600 so we can send you entry forms and rules right away.

After all, if you win, both your house and your reputation will get built in *Better Homes and Gardens*.

Since the deadline for receipt of entries is February 6, please send me entry forms right away. Mail to: **Innovations in Housing**, Dept. 200-078-ARC, P.O. Box 11700, Tacoma, WA 98411

Name _____

Address _____

City _____

State _____ Zip _____

Sponsored by the American Plywood Association, the American Wood Council, *Better Homes and Gardens*, *Builder* and *Progressive Architecture*.

Circle 27 on information card

The new surface anodized can't match.



What you see here is a brand new building material. Commcoat™
Flurodize® Coil.

The remarkable finish is made by bonding a Flurodize coating
to our finest aluminum substrate, right in our rolling mill.

Commcoat looks a lot like anodized aluminum. Only better.
And it comes in seven exciting colors. (Extrusions, too.)

For a price no higher than
anodized.

But the difference is, Commcoat
Flurodize Coil keeps on looking good

year after year. With far less weathering, fading or staining than
anodized.

Nor does its color vary from panel to panel. Or crack when
sharply bent.

To get your hands on some, call any of these distributors:
Petersen Aluminum Corporation, Wrisco Industries or Idéal Métal
Inc. Laminated panels are produced
by Alucobond Technologies.

Or call us at 1 (800) 556-1234, Ext. 174.
In California, 1 (800) 441-2345, Ext. 174.



**COMMONWEALTH
ALUMINUM**

Commcoat is a trademark of Commonwealth Aluminum Corp. Flurodize is a registered trademark of DeSoto, Inc.

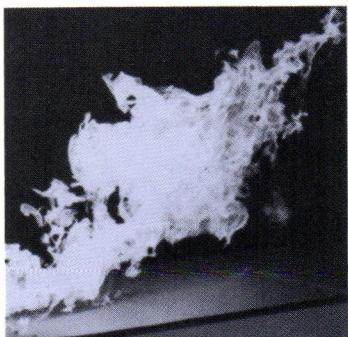
Circle 29 on information card

IT'S 1988 DO YOU KNOW WHICH CODES APPLY TO YOUR NEXT JOB?

Building codes and insurance requirements are getting tougher to understand.

Specifications are being written tighter than ever. Local code approvals, insurance requirements and thermal performance specs are all common in today's roofing projects. Failure to comply can be costly for specifiers and contractors.

Associated Foam Manufacturers saw the trend toward tighter code compliance several years ago and began a number of programs to meet these always changing requirements. Because codes are written for complete roof assemblies and components, many combinations of materials have to be tested. At AFM, extensive product and system testing and an ongoing, independent third party quality control program have been established. AFM plants nationwide are familiar with the local code and insurance requirements for roofing.



Insulations that solve the codes.

Perform® and Contour Taper Tile® EPS Roof Insulations from AFM have been thoroughly tested by Underwriters Laboratories and meet the requirements of local building codes. When you specify EPS from a local AFM plant, you can be sure it will meet the job specifications and local code requirements. EPS insulation contains no CFC's.

AFM testing includes ...

- Flame spread and smoke developed characteristics, using ASTM E-84 and UL 723 surface burning test standards.
- Physical characteristics tests for typical properties of density, compression strength, thermal value, flexural strength, etc., found in the nationally recognized ASTM C-578-85 product standard.
- Roofing assembly testing for all the systems you use... single-ply, BUR, modified bitumen for combustible and non-combustible decks using ASTM E-108 and UL 790 test standards.
- A quality control and follow-up program conducted by an independent third party laboratory recognized by national and local code bodies.
- Product quality good enough to give the building owner a 20-Year Thermal Performance Warranty.

Insulation warranty increased to 20 years.

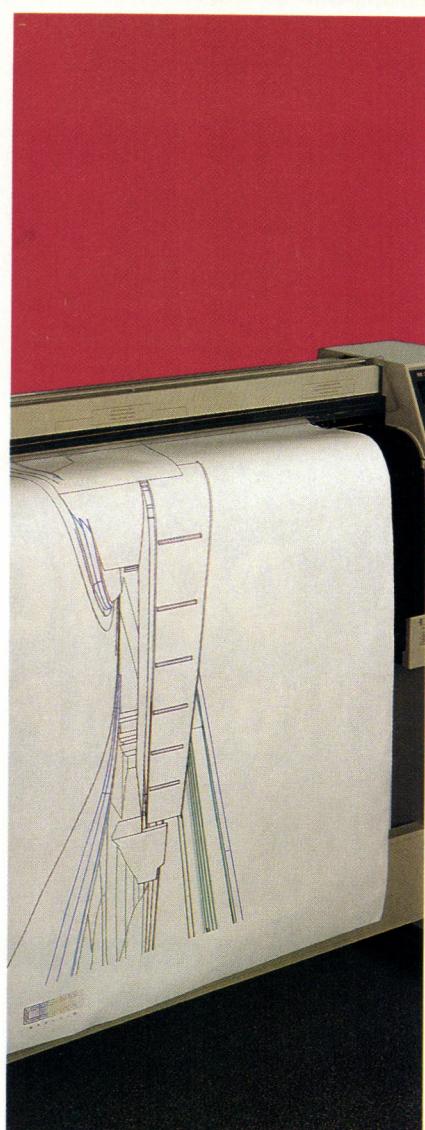
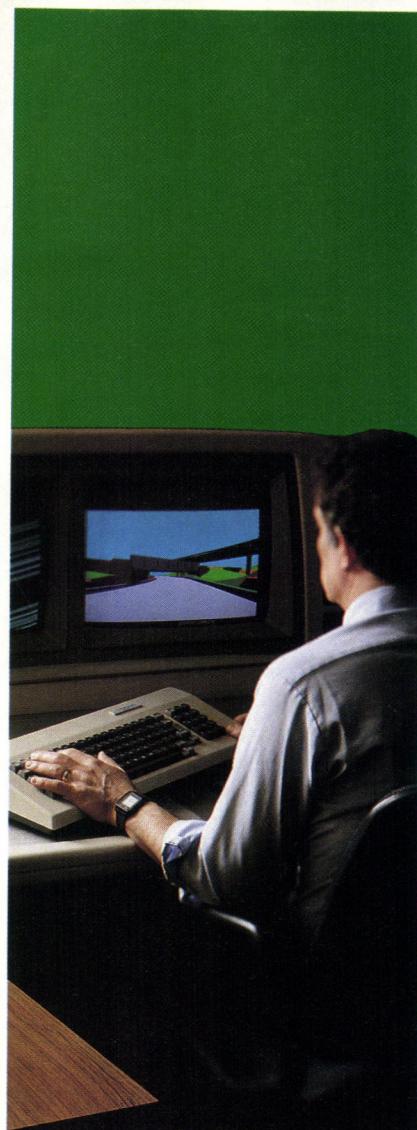
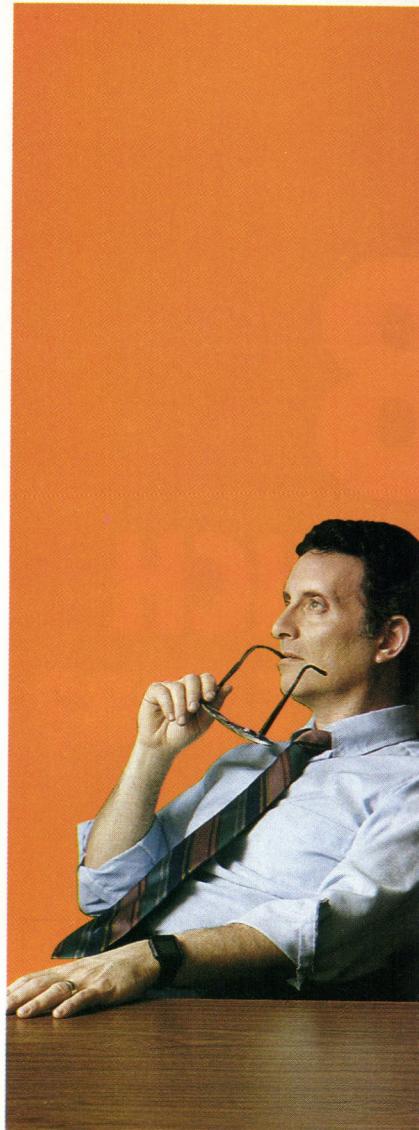
AFM's program of continuous independent testing and quality control certifies product quality before the EPS leaves the plant. That's why AFM Certified Quality EPS can be warranted to maintain 100% of the Industry Standard R value for a period of twenty years — the longest Thermal Performance Warranty in the roofing industry.

Write for your copy of the Warranty and for AFM's guide to insulation specifications.



AFM® Corporation

6140 Lake Linden Drive
Box 246, Excelsior, MN 55331
Phone 612-474-0809, 1-800-255-0176



**Your best ideas
deserve the best plot.**

Comstoc[®] Pen Plotter Media

With all the long hours and inspiration that go into your CAD plans, be sure your hard copy output reflects all your up-front care and attention to detail. Your best ideas deserve the best plot!

COMSTOC[®] Pen Plotter Media makes a showcase presentation of your work. Choose from our extensive line of papers, vellums and films — each uniquely designed to meet your specific needs and fulfill the application at hand.

You'll find the smooth, uniform surfaces of COMSTOC deliver the finest inking quality. So that your lines lay down dark and dense, with no fading, no dragging and no skipping. What's more, your pens last longer. And you get the very best from your pen plotter.

With COMSTOC in your plotter, you can count on sharper lines and cleaner backgrounds. So that your redrafting is accurate. Your reproductions are crisp

and clear. And the quality of your work carries all the way through. From the first pen on paper, to the final copy your client will see. For plotting precision, make this media decision... COMSTOC Pen Plotter Media. From K&E, of course.

Stock up on COMSTOC Pen Plotter Media now at your K&E Dealer. For the Dealer nearest you, phone (201) 625-9005.



The tradition of excellence continues
Keuffel & Esser Company

Box 800, Ford Road, Rockaway, NJ 07866

The Institute from page 22

ment store Bergdorf Goodman. And, at the other end of the spectrum, Ralph Lauren is now designing furniture. "A jacket becomes a sofa becomes a house," said Giovannini.

This is not a new phenomenon, as shown by panelist Kron's personal history of the past 30 years from the perspective of a consumer of style and architecture. Kron said that in the 1950s she went modern and bought a Saarinen chair and commissioned an architect to design a "Modern with a capital M house." She couldn't afford the house, fortunately, because by the 1960s she wanted more "complexity and contradiction" in her architecture. Then it was minimalism, and later high-tech, before she "saw the handwriting on the loading dock." With every new style she had redecorated her home; but when Memphis arrived in 1980, Kron stood firm. She decided to write a book instead. Postmodernism came and went. And now, after the first stage of a "retrofit," Kron said her once balanced and harmonious apartment is "nervous and jerky." Although she had a few doubts at first, she said, "I felt better when a savvy friend dropped by and declared it deconstructivist and said that as usual I was on the cutting edge."

To address the explosive growth of museums and their changing roles, critic Suzanne Stephens moderated a presentation of recent museum projects and led a panel discussion among six architects. Illustrating the diversity of art museums being built around the country, Michael Graves, FAIA, described three projects—his controversial Whitney addition proposal, a proposed art museum in Newark, N.J., and his 1987 AIA honor award-winning gallery at Emory University, which he called the "other museum in Atlanta."

In describing his arts center under construction at Ohio State University, Peter Eisenman, FAIA, said that the building might not be a good place to exhibit works of art. "I think works of architecture should displace and challenge the activity that takes place within them," he said. The museum's 600-foot-long, glazed gallery space is wedged between two existing campus buildings for performing arts. To preserve campus pedestrian access, a pathway within a scaffolding structure parallels this long space and allows views into the main exhibition gallery.

Eisenman said he doesn't believe architecture shelters art. "The art will adapt to the environment just as people adapt to their own houses," he said.

The museum as a symbol also was debated. Robert A.M. Stern, FAIA, called for domestic scale in museums and described his proposed Norman Rockwell Museum, a 25,000-square-foot building scheduled to be completed in 1991.

Stern's proposed museum was the subject of group discussion. Stern cited the influence on his design of traditional New England architecture and Rockwell's art.

Eisenman held a different opinion of the proposed museum and said that each of the architects on the panel created buildings more responsive to his or her personal design approach than to requirements of the program. "Graves would do a Graves, Meier would do a Meier, Gwathmey would do a Gwathmey, but Stern did a Stern and called it a Norman Rockwell," said Eisenman.

The third design seminar was a 40-year retrospective on the AIA honor award program and a review of this year's 15 winning buildings. Moderator Robert Campbell, AIA, opened the discussion by asking, "What are the awards for? To push modernism? All of the early honor award winners were modern. Or to sell good architecture?"

Addressing the questions of styles and movements and the "so-called fading of postmodernism," Eisenman said that architects are in the hands of the media who label our buildings. "Architects must be responsive to other issues, to our own integrity, and turn away from the media to find real architecture again. Postmodernism may be the last death rattle of that kind of thinking," he said.

In agreement, Hugh Jacobsen, FAIA, said that "architects don't think in terms of style or call their buildings names, such as modern or postmodern." As for labels, Campbell said that modernism, postmodernism, and deconstructivism are all art and visual movements, while architecture is the creation of good environment.

On the issue of how winning buildings are selected, Eisenman accused the juries of sometimes taking "homogenous views of everything." He suggested that architects often enter design awards programs or sit them out depending on the slate of jurors. He also urged AIA to diversify its awards juries.—LYNN NESMITH

Professional Seminars Address Emerging Technologies

In the buildings of tomorrow, photonics and biotechnology will have eliminated electrical wiring and waste pipes. Energy will be endless, cheap, and stored within superconductive ceramics. Computers will behave more like the human brain, capable of reacting to the spoken word. People will travel in pods that move through three-dimensional space along vacuum tubes. Walls will resemble living membranes able to store and transmit light and act as a protective skin for inhabitants.

John P. Eberhard, FAIA, executive director of the National Academy of Science's Building Research Advisory Board, suggested these and other forecasts during his AIA convention presentation on "Emerging Technologies for the Cities of the 21st Century." Photonics, including lasers, masers, and fiber optics, will replace the wiring that now transmits electric energy, Eberhard predicted. He described

a new Japanese system called *himawari*, which collects sunlight and transmits it over fiber-optic cables to a building interior.

His vision of the future included biological methods of dealing with waste through genetic engineering, inorganic materials that enhance membrane technology, and superconductivity and microelectronic developments that extend human dexterity through robotics. Eberhard predicted a very different appearance for cities, including the disappearance of the skyscraper, which he termed a "dinosaur too big to adapt" to future technologies.

In a similarly futures-oriented scenario, Donald P. Greenberg, the Jacob Shurman Gould professor of computer graphics at Cornell University, predicted that 12 years from now the typical workstation computer will have five to ten times the power of today's supercomputers. But while the capability of hardware and software gallops ahead, application to architecture lags, he warned. A new approach to teaching computer-aided design in the schools and a new commitment to incorporating computers into practice is necessary to keep pace, he said.

To demonstrate, Greenberg presented some of the work of his students at Cornell in simulating ambient, diffuse, and specular lighting conditions. Using the principles of ray tracing, which calculates the specular or diffuse reflectance of a light ray among objects in a drawing, Greenberg showed the quantum leap in realism of computer-generated renderings that is possible with existing workstation hardware (see June, page 108). The limitation of ray tracing is that calculations are too cumbersome for practical application. The computer operator defines objects and their reflectance within a space, identifies originating light sources and the observer's vantage point, then waits eight hours while the computer produces an image.

That limitation has been mitigated by a technique known as radiosity. With the radiosity approach, the emitted and reflected light of each point within a drawing is calculated with respect to its exposure to light sources, and calculations are not dependent on the observer's vantage point. These calculations take about five hours on available hardware, Greenberg explained. But once the calculations have been completed, view-dependent renderings take the computer less than a second to generate, he said. This approach is much more in keeping with the way architects work with their data bases, and it allows many renderings to be generated quickly, as long as light sources and object positions do not change.

When asked about market availability of software with ray tracing and radiosity capabilities, Greenberg said that one of his former students is now working with Douglas F. Stoker of Skidmore, Owings & Merrill on IBM's new Architecture and Engineering Series CADD software, which

continued on page 30

Lighting the way to tomorrow.

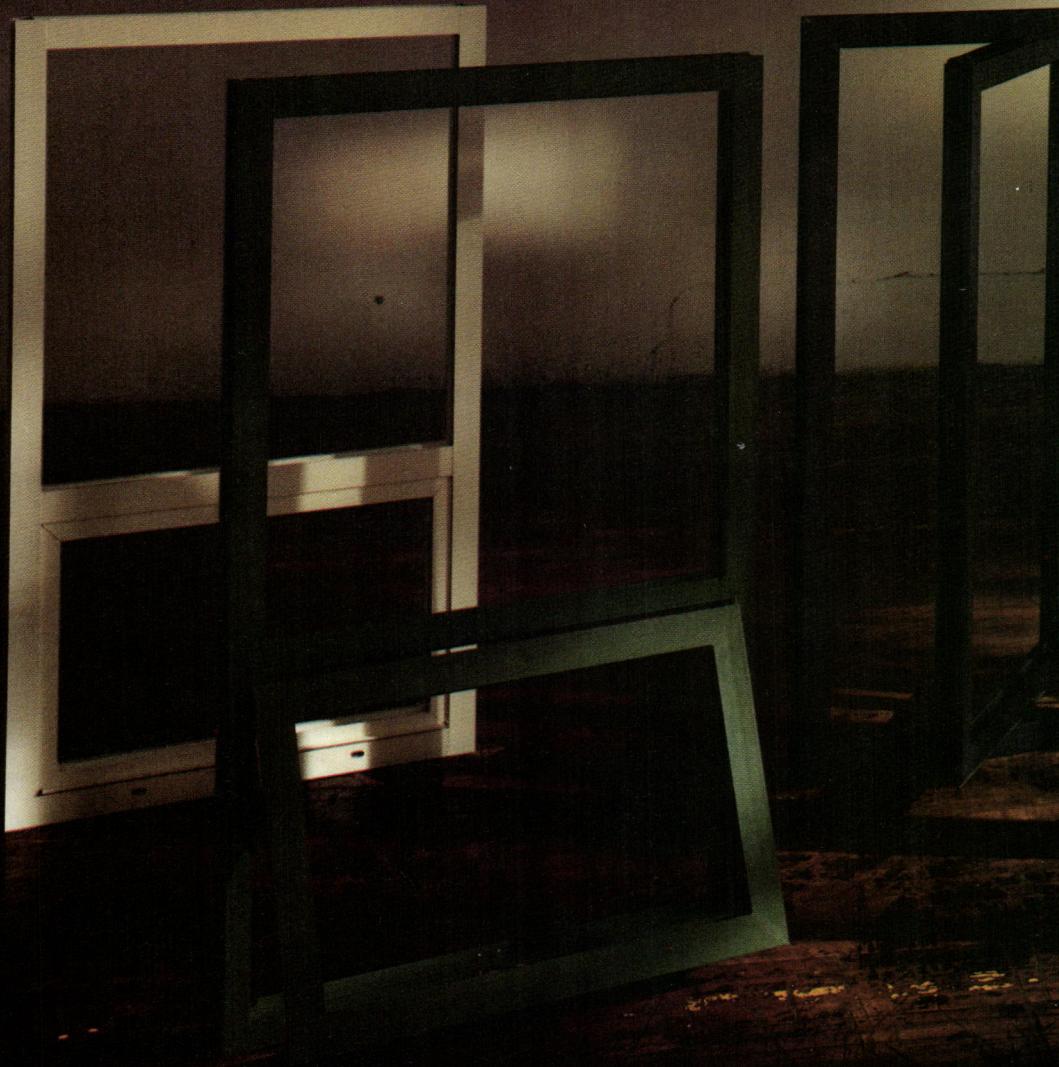
Today, windows are a bigger part of architectural design than ever before. That's because design is a bigger part of windows.

Kawneer's window line includes both Thermal and Non-Thermal models. Vertically and horizontally pivoted. Inswing and outswing casements. Projected, top-hinged, fixed and high performance windows. Kawneer has them all. To open design opportunities. To open minds.

And Kawneer windows are not only constructed to meet AAMA performance standards, but standards much higher. Our own.

Kawneer windows. They let you look at your design in a whole different light.

Kawneer
The Designer's Element





*For full technical description, tracing details and specifications,
contact your Kawneer representative or write to: Kawneer Company, Inc.,
Department C, Technology Park-Atlanta, 555 Guthridge Court, Norcross, GA 30092.*

Circle 35 on information card

Circle 39 on information card

The Institute from page 27
has ray tracing capability. Radiosity cal-

Workshop Explores Ways to Improve Time Management

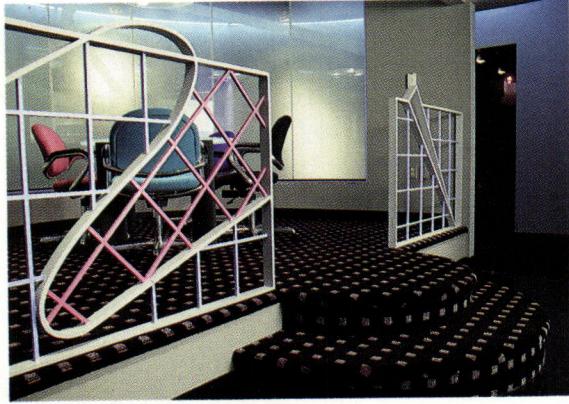
be for a specific project, for typical projects, or for devising a project organiza-

DUPONT SALUTES THE WINNERS OF THE 1988 ANTRON® DESIGN AWARD COMPETITION



PHOTOS: RICHARD HACKETT

GRAND PRIZE. Design Team: Phyllis Martin-Vegue, Lamberto Moris and Cindy Kupka of Simon Martin-Vegue Winkelstein Moris, San Francisco. Client Site: Packard Foundation. Carpet Mill: Patrick. Styles: Tradition, Heritage. Contract Dealer: Conklin Brothers.



OUTSTANDING ACHIEVEMENT, PUBLIC SPACES

CATEGORY. Design Team: Jane Garland Lucas, Janice Fanya Lewbin, and Edwin J. Steel of JGL Interiors in association with Stahl Associates, Boston. Client Site: Boyd Corporation's Advantage Showroom. Carpet Mill: Harbinger. Styles: Confetti, Classic Square, Fifth Avenue.



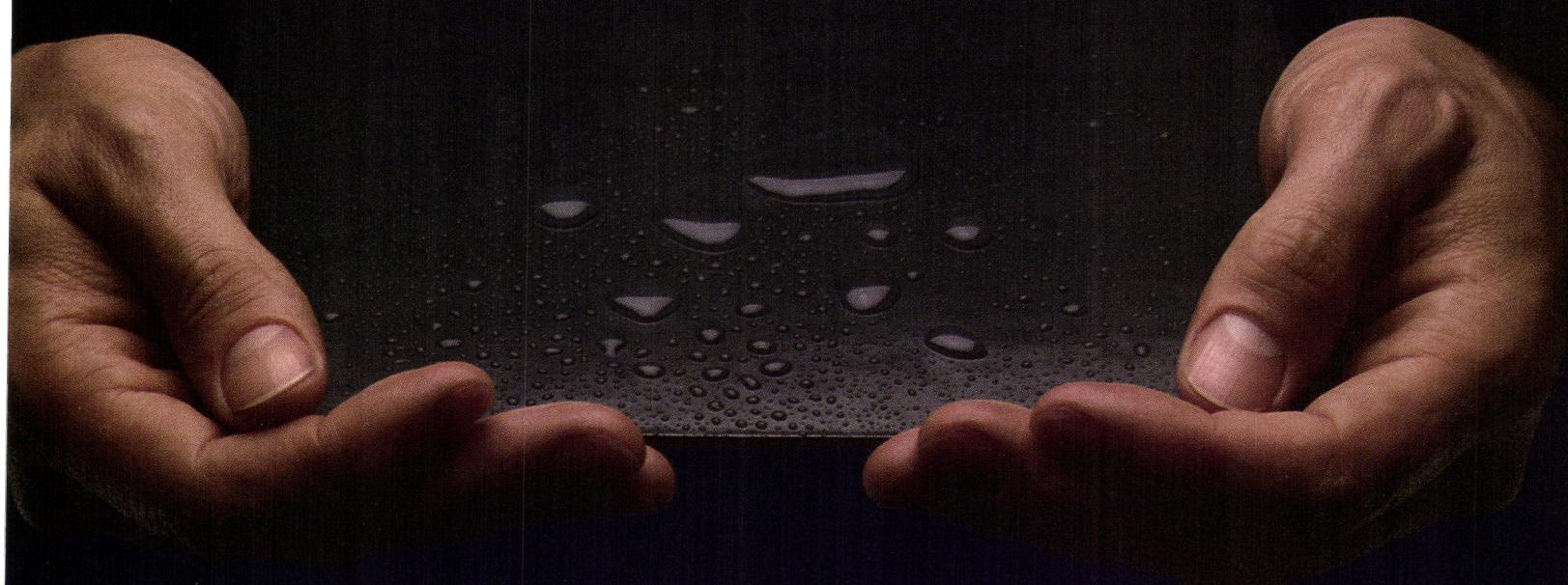
OUTSTANDING ACHIEVEMENT, HEALTH CARE

CATEGORY. Design Team: Raymond F. Stainback, Jack Plaxco, and Paula Stafford-Cloutier of Thompson, Ventulett, Stainback and Associates, Inc., Atlanta. Client Site: Ronald McDonald House at Emory University. Carpet Mill: Designweave. Style: Marquis. Contract Dealer: Carnes Brothers.

In recognition of their outstanding achievement in interior design utilizing carpet made of DuPont Antron® nylon, we congratulate this year's talented winners.

DUPONT
REG U.S. PAT & TM OF
Carpet Fibers

EVEN AFTER 20 YEARS, THIS IDEA STILL HOLDS WATER.



BITUTHENE.®

The waterproofing system engineered
to keep water out. Once and for all.

Twenty years ago, we introduced a bold way of guarding structures from the ravages of water and time — Bituthene. And it has been preserving the integrity of foundations, plaza and parking decks, subways and tunnels ever since. Now more than 2 billion square feet of Bituthene protection have been installed around the world.

Once it's in place, it's in for good. A rugged, pliable, self-adhering membrane system that was

built to go in once. To go in easily. To stay put. Resist cracking. And never stop working. No matter what the climate.

And it comes to you armed with Grace technical expertise and engineering experience. Protect your structures with a watertight idea. Bituthene — the waterproofing system with a proven past.

GRACE
Construction Products

Circle 43 on information card

the *Renaissance* *Collection*

For the kitchen or bath—
Chicago Faucet's charming Renaissance Collection...
our way of saying some traditions will never change.



CHICAGO® FAUCETS

Decorative Products

Commercial quality faucets for residential use since 1901.

THE CHICAGO FAUCET COMPANY 2100 South Nuclear Drive • Des Plaines, IL 60018 • Phone: 312/694-4400 • Telex 28-2528 CHIFAUCO

Circle 45 on information card

Delegates Elect Damianos, Adopt Housing Resolution

In addressing the business of the Institute, delegates adopted a diverse set of resolutions calling for AIA action on topics including affordable housing, planned growth, tropical rain forest protection, the New York waterfront, and the Reagan-Gorbachev summit.

The affordable-housing resolution, introduced by the New York Chapter/AIA and sponsored by a majority of the regional board members, calls upon AIA to focus concern on "promoting adoption by Congress of a National Affordable Housing Act and creating a task force to coordinate and develop AIA programs in this area." By giving highest priority to the affordable-housing crisis, the resolution says, AIA will call on the federal government to set as one of its goals that "every American be decently housed by the year 2000 and that this housing be well designed with attention to livability, adequate space standards, durability, quality construction, cost effectiveness, and encouraging neighborhood vitality."

This will be no small task. In American cities today, the crisis is most visibly represented by an ever-growing number of homeless people. But homelessness is only part of a broad spectrum of housing ills in this country. And predictions are dire: by the year 2003, unless some drastic steps are taken, 18.7 million people could be homeless, burdened with excessive rents, or forced to live in substandard housing, warns the Neighborhood Reinvestment Corp., a congressionally chartered public-housing advocacy group. (For an examination of the affordable-housing crisis, see page 58.)

The planned-growth resolution is a reaction to "the lack of planning processes and the growing trend toward the introduction of reactive planning processes in communities nationwide." Sponsored by the Orange County Chapter/AIA, the Seattle Chapter/AIA, and Donald C. Axon, AIA, a regional director, the resolution calls for a task group to be formed to develop information, tools, and strategic assistance for members to promote the understanding of positive opportunities in planned growth.

The resolution on tropical rain forests calls for a "study to identify specific areas of ecological sensitivity and their causes and inform architects about timber specifications that are contributing to rain forest destruction."

Another resolution calls for the national AIA to support efforts of New York architects to develop a comprehensive urban design plan for the city's waterfront, so that future projects will fit into the historic context.

Also approved was a resolution commending President Ronald Reagan and Soviet General Secretary Mikhail Gorba-

chev on their efforts to avoid nuclear war through nuclear disarmament; the resolution urged further cooperation in solving global problems. And former AIA executive vice president David Olan Meeker Jr., FAIA, who died last year, was honored.

During voting, Sylvester Damianos, FAIA, of Pittsburgh, was elected AIA's first vice president/president-elect for 1989. Damianos has served at the national level as an AIA vice president this past year and as chairman of the AIA design commission. Prior to that he served as a regional representative on the AIA board of directors, as president of the Pittsburgh Chapter/AIA, and in leadership roles in the Pennsylvania Society of Architects.

His diversified firm, Damianos & Associates, offers architecture, planning, graphics, industrial design, art consultation, and interior architecture. In addition,

Damianos is an adjunct professor at Carnegie-Mellon University. As a sculptor, Damianos has exhibited in London and New York City. He is a native of McKeesport, Pa.; he earned a Bachelor of Architecture from Carnegie-Mellon University and was a Fulbright Scholar at the Technological Institute of Delft in the Netherlands.

Elected to join Damianos as AIA's 1989 officers are three vice presidents: Gerald S. Hammond, AIA, of Hamilton, Ohio; James Lawler, AIA, of West Hartford, Conn.; and Gregory S. Palermo, AIA, of St. Louis. Christopher J. Smith, AIA, of Honolulu, was elected to a two-year term as secretary. Thomas J. Eyerman, FAIA/RIBA, continues in his two-year term as treasurer. And Benjamin Brewer, FAIA, of Houston, will be the 1989 president.

continued on page 38



Our 20th Year!

Structures Unlimited, Inc., Pool Enclosures will create a permanent outdoor feeling, indoors! Besides permanency, there are other key benefits

- light-bright space
- longevity
- screened operable roof
- single-source responsibility!

To see one of our Enclosures at a property near you, call 1-800-225-3895 or 603-627-7887.

**STRUCTURES
UNLIMITED, INC.**

P.O. Box 4105,
Manchester, NH 03108

Hampshire Hills Project Club

Circle 47 on information card



*'A quiet moment in that courtyard
seemed always to soothe the day's bruises.'*



Over 4,000
windows and doors.
Each designed to create
the special places
that people will remember.



Pozzi
WOOD WINDOWS

A Division Of
Bend Millwork Systems, Inc.
A NORTEK Company.

Call 1-800-821-1016 for
a detailed color brochure
or dealer information.

Circle 49 on information card

Controversies

New, Scaled-Down Scheme Unveiled for Coliseum Site

A new proposal for a massive Columbus Circle complex in New York City is slightly scaled down, somewhat shorter, and has towers made more slender and pulled farther back from Central Park. Announced June 2, the design by David Childs, FAIA, of Skidmore, Owings & Merrill/New York replaces a scheme by Moshe Safdie that became embroiled in litigation and controversy and was withdrawn last December (see Feb., page 13).

At a City Hall press conference, Childs said he wanted his design to be "responsive" to community concerns but, above all, "appropriate" both to its specific site and to the traditions of New York City architecture. Childs worked from a revised program. The previous 20 percent floor area bonus in exchange for subway improvements was eliminated, reducing the FAR from 18 to 15 and its gross from 2.7 million square feet to 2.2 million. Use mix also changed, with 800,000 square feet of offices subtracted and 300,000 square feet of apartments added. At 850 feet, Childs's cluster of towers is 75 feet shorter than Safdie's building. The shadows that would be cast over Central Park—an issue raised in opposition to Safdie's original design—are said to be "contextual" and minimally "additive" to shadows already cast by

other buildings surrounding Central Park.

Childs's scheme would demolish the site's existing coliseum and office building but retain its 640 parking spaces located on subcellar and concourse levels. The proposed building's street wall curves and rises to 85 feet, the height of Edward Durell Stone's Huntington Hartford building across Eighth Avenue. Paving and planting continue around the circle, and shops open onto the sidewalk. A monumentally scaled "front door" terminates the Central Park South (59th Street) axis at street level from the east and leads inside to a

large rotunda and office lobby and beyond to a 90x145-foot courtyard. A concentric retail galleria traverses the rotunda. Residential lobbies anchor three corners of the courtyard.

Above the retail base, four office and residential towers occupy quadrants around the courtyard. Occupying the northeast quadrant, the shortest tower rises to 345 feet, the height of the twin-towered, 1932, art moderne Century apartments on Central Park West, and it chamfers in response to the diagonal path of Broadway. The three other towers in the complex (nicknamed Niña, Pinta, and Santa María) have been planned as engaged, offset squares

Revised scheme (center) in context.



Sure, You Hear

Price/performance. Advanced design. Productivity. Flexibility. Ease-of-use. Quiet operation. Software/hardware compatibility and connectivity. A and B size. Bright, detailed color. One-second RGB screen capture time. Now you really can get it all. In one neat package. To find out more, call us at 1-800-CALCOMP. Or write CalComp, P.O. Box 3250, Anaheim, CA 92803. In Canada, call (416) 635-9010.

Get It All With The

©1988 CALCOMP INC. We draw on your imagination and ColorView are trademarks of CalComp Inc.

and partnered across both orthogonal axes. The tower on the southeast corner of the complex rises to 616 feet, the approximate height of buildings a block north and a block south of the site. Widened from 30 feet in Safdie's plan to 65 feet, the distance between the two westernmost, 850-foot-tall towers prolongs the 59th Street skyline axis, fractures the mass, and recalls the Century's massing at enlarged scale.

The retail base would be clad in gray-brown limestone; office towers in golden Vetterstone. Office elevations are a grid of Chicago windows interrupted by externally expressed three-story atria. Residential elevations are seven-story units of mottled brickwork with vertically expressed centers and horizontally expressed edges, a design reminiscent of art deco. As the elevations rise, bricks lighten in tone and the building edges become less emphatic—from pier to glazing to re-entrant corner to glowing lantern; slate spandrels are red and green.

The new proposal is scheduled to go before the New York City Board of Estimate next spring for final approval. Before then, a supplemental environmental impact statement must be submitted and reviewed and the lawsuit successfully brought against the city over the process of turning over public land to a private developer appealed and resolved.—SANDY HECK

Mr. Heck is a freelance writer in New York City.

BRIEFS

Wood Design Awards Entries

The American Wood Council is seeking entries for its 1988 wood design awards program. Awards will be given for residential and nonresidential buildings, both new and remodeled, completed since January 1985. Projects must have a dominant wood appearance but need not be built entirely of wood. The deadline for submissions is Sept. 30. For more information contact AWC, 1250 Connecticut Ave. N.W., Washington, D.C. 20036.

Computer Software Design Competition

The Concrete Reinforcing Steel Institute is seeking concise computer programs that reflect economy, practicality, and originality in both concept and application for design, analysis, and construction of conventionally reinforced, site-cast concrete structures. Cash awards in four areas of concrete design will include a grand prize of \$2,000 and four prizes of \$500. The deadline for entries is Aug. 15. For more information contact CRSI, 933 N. Plum Grove Rd., Schaumburg, Ill. 60173-4758.

Historic Preservation Trust Established

The New York City architecture firm Beyer Blinder Belle has established a charitable trust in honor of preservationist James Marston Fitch to further historic preservation work. The trust will award fellowships to American professionals in architecture,

urban design, decorative arts, landscape architecture, and architectural history. Fitch, the director of preservation at BBB, is widely recognized for his contributions over five decades as architect, professor, author, and critic.

Washington, D.C., History Exhibition

An exhibition of original artifacts, paintings, maps, sketches, and other physical evidence of the early development of Washington, D.C., will be shown at the Octagon Museum July 11 to Sept. 25. The first in a series of five exhibitions over the next five years, it draws on research conducted at the Octagon, one of the last surviving buildings of the early city.

N.Y. Foundation Architecture Fellowships

The New York Foundation for the Arts has awarded 10 architecture fellowships of \$6,000 each as part of its annual awards to creative artists of the state. The recipients are Karen Bausman, Karen Fairbanks, Stephen Leet, Elliott J. Littmann, Robert McAnulty, Pascal Quintard-Hofstein, George Ranalli, Jesse Reiser, Juergen Riehm, and Donna Seftel.

Rotch Scholarship Recipient

Thomas Reddig, an architect with Jung/Brannen Associates Inc. in Boston, has won the 1988 Rotch Traveling Scholarship, an annual award to an architect under age 35 who has worked at least one year in Massachusetts. □

t All The Time.

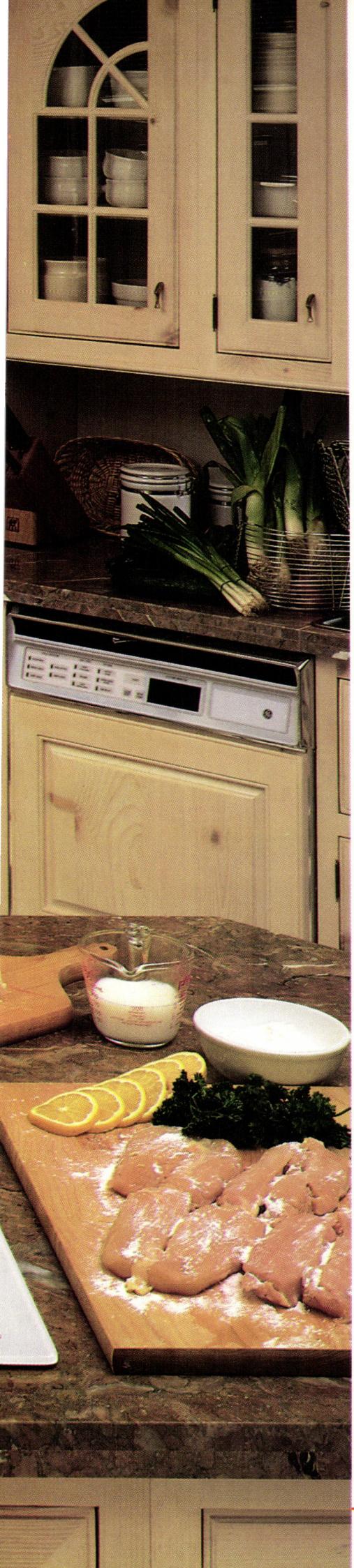


We draw on
your imagination.™

 **CalComp**
A Lockheed Company

New CalComp ColorView.





Now, the only complete line of built-ins adds something completely new. Gas.

There are a lot of nice things to be said about those good-looking European gas cooktops. But if you've ever specified them, you've probably found out that they do have one annoying drawback.

Their small size.

On the other hand, American cooktops seem to have been designed for practicality rather than beauty.

So when we decided to add a gas cooktop to the Monogram line, we did a little specifying of our own.

We wanted one that combined the best of both cultures.

That's why it's the size American cooks know and like. (*Twelve inches* wider than a typical European top.)

And why, to give it European good looks and cleanability, it has sealed burner bowls, and a tempered glass surface. In a choice of white or black.

We also chose burners that are different from standard American practice.

Two are designed for normal cooking, and two for much better control in the low range. (A highly desirable feature when simmering thick creams, gravies or sauces.)

Our new Monogram cooktop also has electronic pilotless ignition, protected against spills to make sure it keeps on working.

But while we've added all these features, we've also subtracted something else.

Depth.

Unlike many other models, European or American, it only needs two inches of space below the counter top. (Which frees up a lot of room underneath.)

Outstanding though it may be, this new cooktop is not the only noteworthy addition to the Monogram line.

We are also introducing the first built-in refrigerator that gives ice and water through the door.

A unique *electronic* modular cooktop.

A single and a double electronic wall oven.

An improved electronic dishwasher.

And a matching compactor.

Together with the other Monogram products, they form something no one else offers.

The only complete *line* of built-in appliances.

Which can make life a lot easier when you are specifying products for a new kitchen. Because you no longer have to deal with several different companies.

Instead, you only have to deal with *one*.

And it's a company that goes just a little further when it comes to service.

Who else offers a source of information as *comprehensive* as the GE Answer Center® service?

(Just call 800-626-2000 any hour, any day of the week.)

Who else backs their products with a nationwide network of *factory-trained* service professionals?

No one else.
Only GE.



Monogram.

After your grand entrance,
how about a beautiful exit?

US3 BRIGHT BRASS

US9 BRIGHT BRONZE

US10B OIL-RUBBED BRONZE

US 32 BRIGHT STAINLESS



You put a lot of effort into designing beautiful entrances. So why overlook the exits? They can be beautiful, too, with our new fire-rated exit devices. Adams Rite now offers a complete package of UL-listed (both fire-rated and life safety) exit hardware and trim for wood, metal and glass doors.

All devices feature attractive, full-width push bars with no-load actuation of only 8 pounds anywhere along the bar. Each bar is either anodized or metal-clad in a wide choice of popular finishes: brass, stainless and bronze.

Whether you choose Rim, Mortise, Surface Vertical Rod, Concealed Vertical Rod or all four, you'll be choosing the name that originated the MS® Maximum Security Deadlock. Count on Adams Rite for innovation in safety and security, plus fast delivery and competitive prices, too.

Write or call for complete information and specifications.

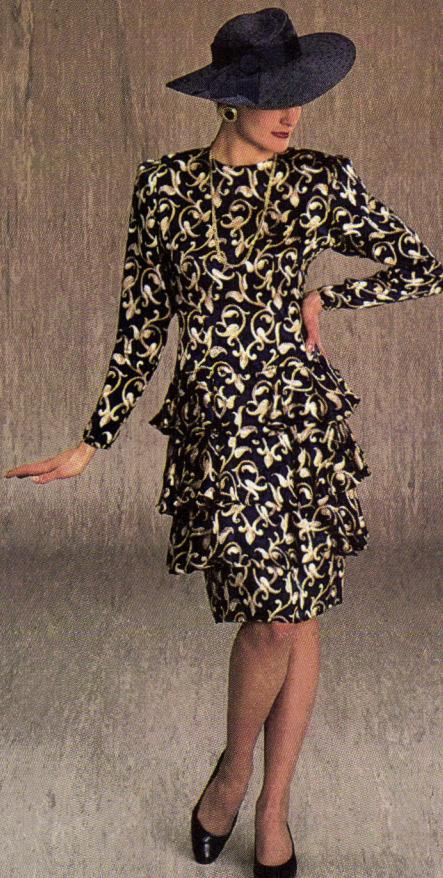
ADAMS RITE
MANUFACTURING CO.



4040 SOUTH CAPITOL AVENUE, POST OFFICE BOX 1301, CITY OF INDUSTRY, CALIFORNIA 91749
213/699-0511 TELEX: 3710777 CABLE: MS LOCK FAX: 213/699-5094

Circle 55 on information card

Innovative Answers to Your Flooring Needs



VPI rolls out two great flooring advances.

Now you can get all the advantages you've come to expect from VPI, in two new sheet vinyl floor coverings. Both offer outstanding long life, enduring beauty and ease of maintenance.

Choose attractive Custom Royale™ in ten subtle, marbleized colors. Custom Royale is designed for heavy traffic in health care facilities, retail stores, schools and manufacturing and research environments.

Or choose slip-resistant Sure-Trac™ available in six colors. Sure-Trac's unique surface, either plain or embossed, affords high traction in kitchens, food and chemical process-

ing plants, entrance ways and similar areas.

New VPI homogenous sheet vinyl flooring is made from top quality materials. Patterns and colors are permanent, and won't wear off under heavy traffic. It's resilient, so it's quiet underfoot, comfortable and less tiring to walk on. It resists cuts, gouges, indentation and abrasion, as well as damage from common chemicals.

Now, when you think sheet vinyl flooring, think VPI. Custom Royale and Sure-Trac... lasting beauty on a roll. Two more innovative answers to your flooring needs, from VPI.



Floor Products Division

3123 South 9th Street, P.O. Box 451, Sheboygan, WI 53082

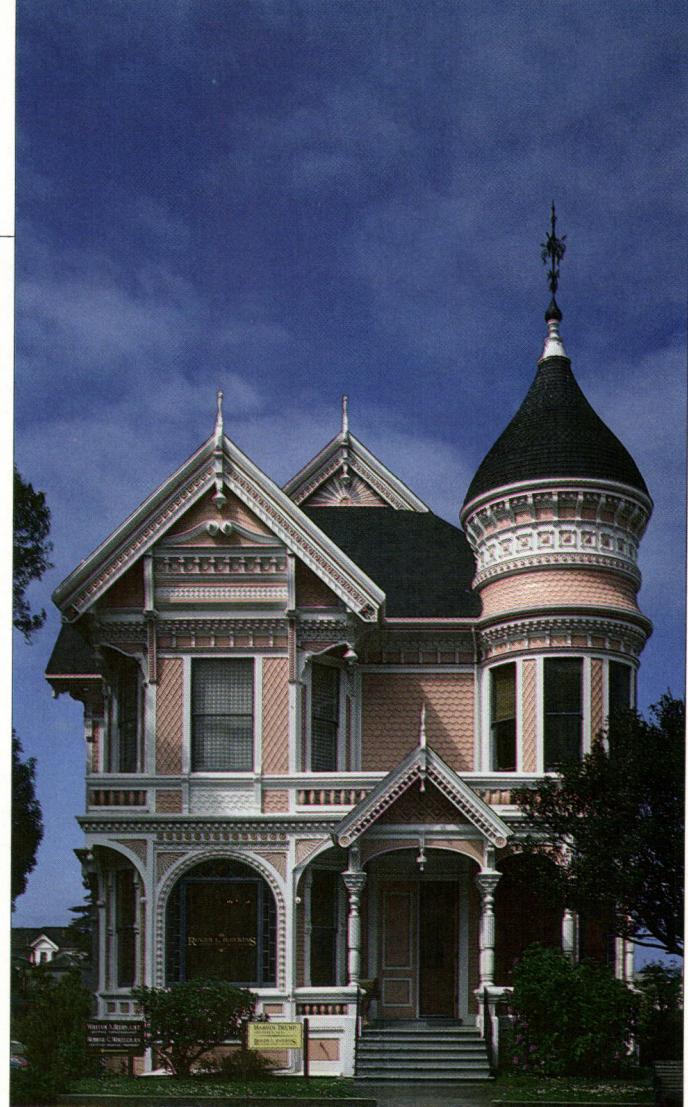
Telephone 414-458-4664 • Telex 910-264-3891

Fax 414-458-1368

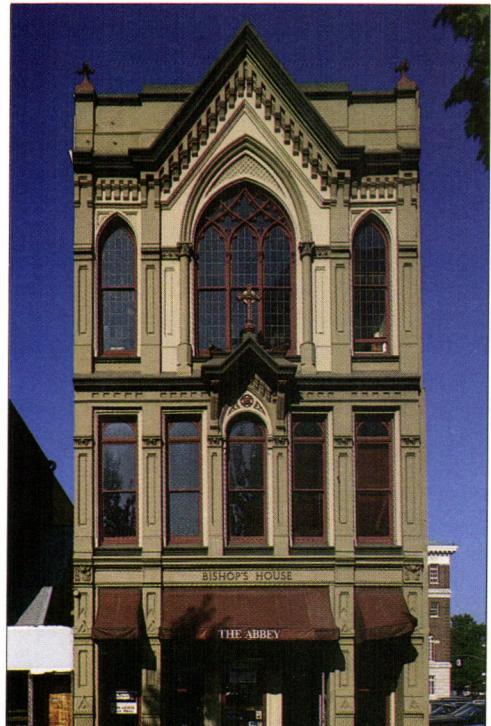
See our catalog in Sweet's.

Circle 57 on information card

Elaborate and Exuberant Western Victoriana



BOOKS

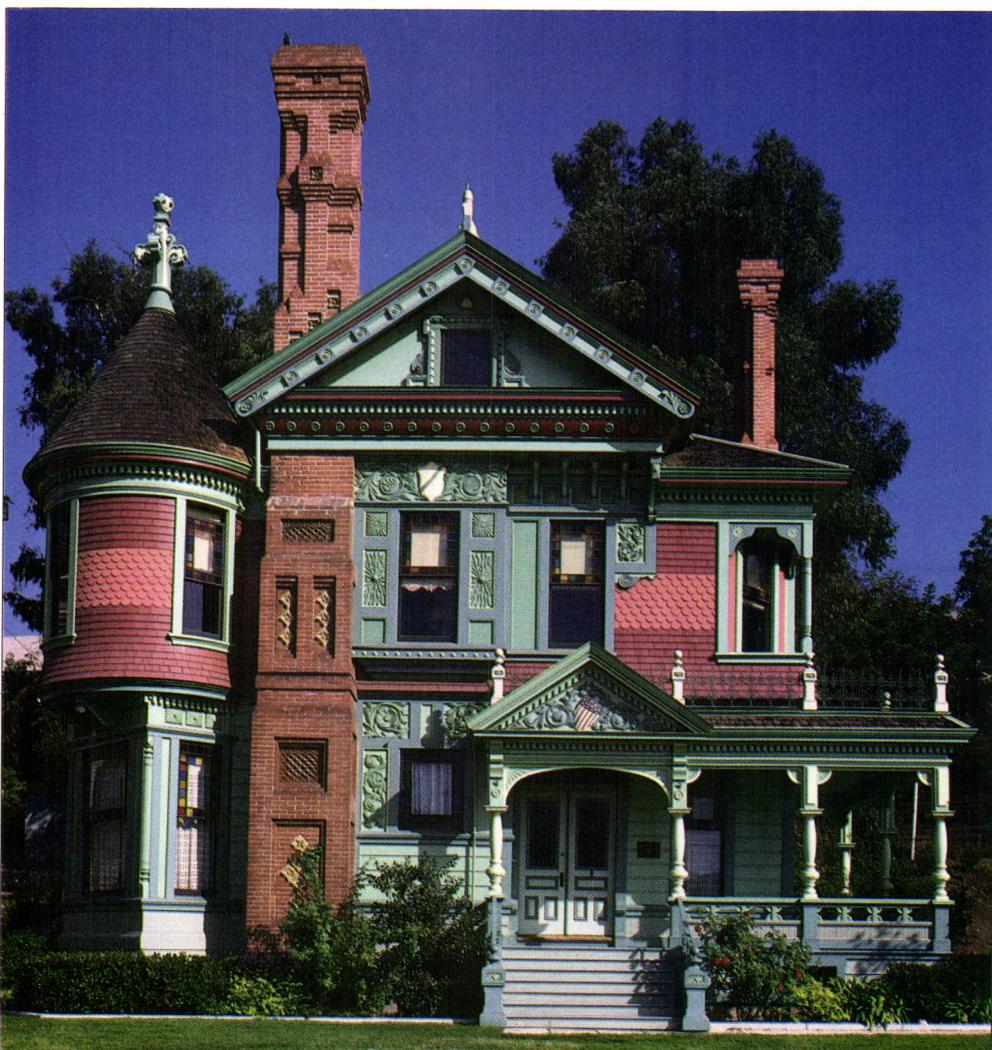


West Coast Victorians. Kenneth Naversen. (Beautiful America Publishing Co., 9725 S.W. Commerce Circle, Wilsonville, Ore. 97070, \$26.95.)

This colorful book takes the form of a sampler of some of the famous and the anonymous West Coast Victorians that have survived the calamities of earthquake, neglect, or bulldozer.

Many of the most elaborate examples of Victorian architecture on the West Coast were along riverways and coastal areas, where the most prosperous towns were found. The earliest of Victorian styles, the Gothic revival, arrived in California in the mid-19th century from the East Coast in the form of prefabricated houses. Pattern books also communicated Victorian architectural fashions and circulated

Facing page: top, J. Milton Carson house, 1887, in Eureka, Calif.; bottom, Wright-Moores house, 1894, in Los Angeles. Left, Bishop's house, 1879, in Portland, Ore.; below, Hale house, 1888, in Los Angeles.



freely. Kenneth Naversen observes, however, that, prior to the railroad, stylistic changes traveled slowly from the East to the West. Styles the rage in Philadelphia would not become evident in San Francisco or Portland until a decade later.

The choice of wood as a building material on the Pacific Coast, due to the limited amount of easily got stone and a preference for a lighter material in earthquake-prone regions, certainly helped the Victorian styles to flourish. In fact, plentiful redwood was one of the easiest woods to mill into elaborate ornamentation, and it resisted decay—allowing those great Victorians to survive to this day.

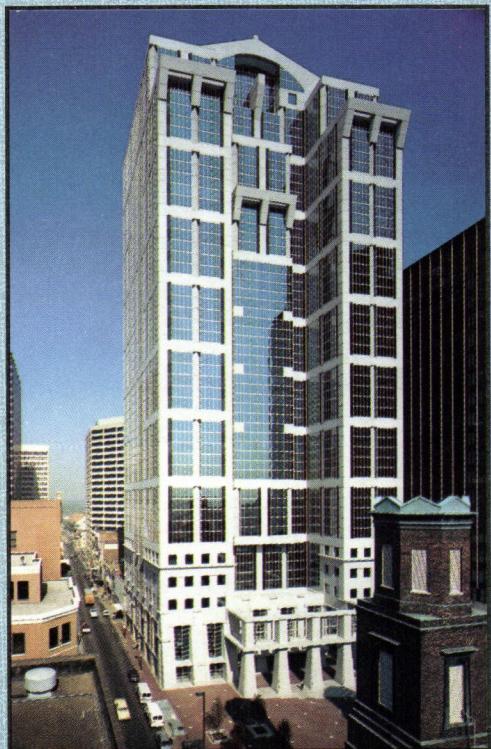
Naversen, a professional architectural photographer, documents more than 100 examples of Victorian architecture, nearly all of them private houses, built over a 50-year period ending at the turn of the century. Most of these are found in sleepy towns—former boom towns—in California, Oregon, and Washington. "Like the diners and the filling stations on old Route 66," Naversen writes of these open-air antiques, "many of them are still around because the freeway to progress was built elsewhere." The author gives capsule histories of the houses and occasionally supplements his own photographs with renderings of the houses from pattern books of the period.—MICHAEL J. CROSBIE

Housing as if People Mattered: Site Design Guidelines for Medium-Density Family Housing. Clare Cooper Marcus and Wendy Sarkissian. (University of California Press, \$55.)

This is a book jammed with the kinds of details that could improve people's lives in large and small ways. Clare Cooper Marcus, a professor in the architecture and landscape architecture departments at the University of California at Berkeley, and Wendy Sarkissian, director of Sarkissian & Associates, Planners, in Sydney, Australia, seem to have read every study in the past 30 years about how design affects people's satisfaction with where they live. Having digested these reports, the authors boil the findings down to remarkably clear and succinct conclusions about cluster housing of one to five stories, focusing mainly on aspects that they say have most often been handled poorly—"the arrangement of dwellings on the site, the treatment of facades and entries, and the crucial spaces between buildings."

The result is an illustrated manual of practically everything you ever wanted to *continued on page 46*

1988 APA Award for Design and Manufacturing Excellence.



Juror's Comments

"This 31-story, landmark office building is a tour de force in the use of precast concrete and precast detailing to articulate complex facades. The architects clearly aspired to make a compelling visual statement that could be appreciated at all scales, whether seen from close up or from many blocks away. The result is a highly distinctive, artfully composed and crafted commercial high-rise unlike any other in the city."

Award Winner:

Third National Bank Headquarters
Nashville, Tennessee
Kohn, Pedersen Fox Associates PC

Featured here is one of the award winners of the 1988 "APA Award for Design and Manufacturing Excellence", a national award program sponsored by the Architectural Precast Association.

The judges look for a design that displays a highly animated use of precast concrete to give life and vitality to the building surface. They look for good control of medium, consistent color and textural control, and design that exploits the potential of a precast concrete system.

Please circle 1 on information card for a free copy of the APA CRAFTSMANSHIP Brochure.

JURORS

Robert Calhoun Smith, FAIA
(Chairman)
Smith & McMahon Architects
Washington, D.C.

David H. Condon, FAIA
Keyes, Condon & Florance
Washington, D.C.

Roger K. Lewis, FAIA
Professor of Architecture
University of Maryland
College Park, Maryland

Books from page 45

know about exterior and site design considerations but didn't know whom to ask. For instance, Item Number 44, on shared entries, advises that, "when one building entry serves a group of dwellings, the number sharing should be between three and eight households." (Sharing by two families may imply private possession and thus lead to conflict, while sharing by more than eight usually discourages neighborly help and conversation.) This seemingly commonsense recommendation is violated, probably to the residents' continuing frustration, by some of this country's most commercially successful architects of attached housing.

Item Number 60 says that private backyards in multifamily housing should be approximately square, to encourage use; if the yard is long and narrow, the far end tends to be neglected and the yard as a whole gives users a feeling of too little privacy. On the book goes, to Item Number 254, on dumpster selection, which says: "Some dumpsters are remarkably inefficient. Some are so high that a small person or child could never reach the lid; some lids are so heavy that few can open them, or, once open, they are left that way."

It's refreshing to read about subjects like dumpsters and yard configurations because these are topics that, despite their manifest mundanity, need to be given some thought if medium-density housing is to provide a good living environment. This book is a good corrective to architectural journals that gravitate toward more abstract issues and to homebuilding industry magazines, which shamelessly exhort builders to use design as a sales booster but rarely discuss how to create housing that will be satisfying over the long haul.

One of the greatest strengths of this book is its advice on how to design housing and grounds to meet the needs of children (and, by extension, their parents). The housing industry, concerned with motivating adults to buy a house or sign a lease, pays less attention to children today than it did in the 1950s. In fact, with millions of single-parent families and two-worker families, the attention paid to children ought to be increasing, for the children's good and for society's.

The organization of *Housing as if People Mattered* is uncommonly efficient, breaking design issues into bite-sized chunks. Number 89, "Doorstep Play," for instance, first announces its main point in boldface: "Design dwelling entries to accommodate doorstep play." It then discusses, in a few paragraphs, how various types of doorstep areas—from the old front stoops of New York City brownstones to the wide covered porches of the South—have proven amenable to play, and it cites studies that readers can consult if they want to learn more. Not a word is wasted. The authors conclude the doorstep play

continued on page 49

ARCHITECTURAL PRECAST ASSOCIATION
825 East 64th Street
Indianapolis, Indiana 46220
(317) 251-1214

APA-THE ASSOCIATION OF PROFESSIONALS

DO ARCHITECTS NEED TOILET TRAINING?

Tighten up your Bobrick specs and close the washroom door to flimsy, unsafe imitations.

According to a nationally conducted survey of architects, Bobrick is considered No. 1 across the board. Quality, design, durability, functionality, vandal-resistance, service. And we estimate that Bobrick is specified in 9 out of 10 major projects.

So what's the problem? Too frequently, the specs are written without a clear standard of quality and the architect's intentions are compromised down the line.

With Bobrick, edges are hemmed for safety, vendors keep vending, soap dispensers stand

up to time, leakproof means leakproof, fit and finish are superb—you've got the idea.

But, you should specify Bobrick as the standard of quality and put some teeth into it. What a

shame to put your heart and soul into architectural perfection and lose it in the washroom!

Want an Architectural Representative who will help you prepare layouts and specs? Call 800/553-1600. In CA call 818/764-1000, ext. 283. Or write to: Bobrick, 11611 Hart Street, North Hollywood, CA 91605.



BOBRICK Washroom Equipment

New York Los Angeles Toronto

Photograph: Motion Picture Industry Pension Plan Office Building, Studio City, CA. Architect: William F. Burch, Architects, Inc., Manhattan Beach, CA. © 1987 Bobrick Washroom Equipment, Inc.

REPUTATIONS AREN'T BUILT IN A DAY.

For over half a century, we've built our reputation building reputations.

Olympic® protects more than wood. We protect reputations, whether you're an architect, builder, property manager or painter.

We've always brought you products made from the finest raw materials under strict quality control. Year after year, project after project. Which is one reason why Olympic protects more homes than any other stain.

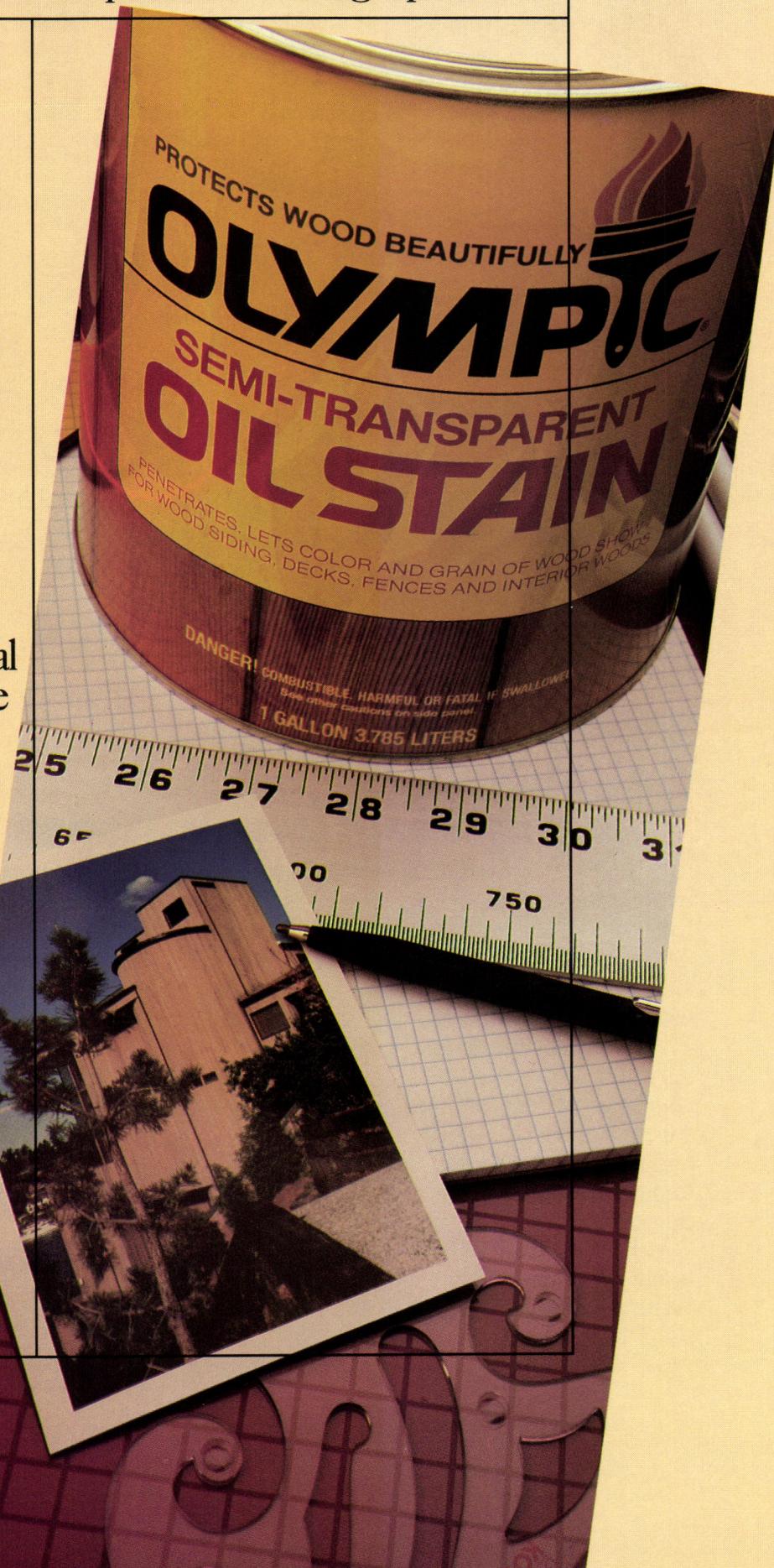
In addition to excellent products, we offer you a support team dedicated to excellence.

The Olympic Stain Professional Team brings you personal service and technical assistance like property inspections, complete color design and coordination, product consulting and experienced bid counseling.

We know you've spent a long time building your reputation.

We can help protect it.

OLYMPIC STAIN.
We've been protecting the American Dream for over half a century.



Books from page 46

section, and each of the other sections, by offering "possible design responses." The drawback is that each of the 254 topics is self-contained, so the book doesn't lend itself to extended reading.

Those who have read environmental sociologist Edward T. Hall and others on how people of various cultures differ in their behavior and their use of the physical environment may be disappointed to discover that this book does little to highlight such cultural variations and tell the designer how to tailor housing to a specific group. In a country like the United States, which has millions of recent immigrants from Latin America, Asia, and other lands, not to mention American-born racial, ethnic, and class groups with recognizably different ways of conducting themselves in public, it would be useful to know whether design should be modified to account for these differences and, if so, how. This is a sensitive topic, but to ignore it is to encourage designers to operate on the basis of unspoken assumptions.

Some readers, myself included, would prefer fewer photos of European projects from 20 or so years ago and more examples of medium-density housing that work in a variety of contemporary American environments.

Such qualms notwithstanding, this book packs much wisdom into a little more than 300 pages. It's one of the most useful books aimed at architects involved in housing today.

— PHILIP LANGDON

Mr. Langdon, author of American Houses (reviewed below), writes a quarterly "Home" column for The Atlantic.

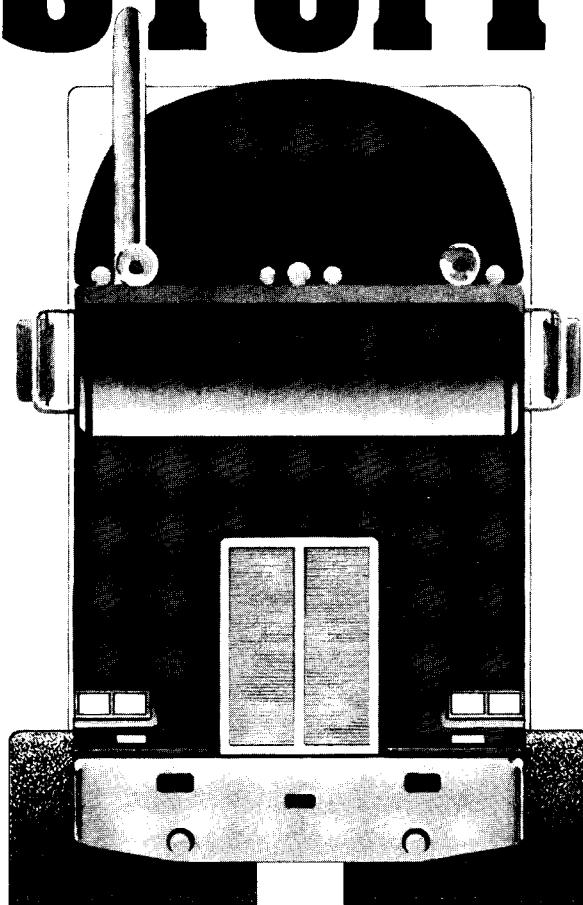
American Houses. Philip Langdon. (Stewart, Tabori & Chang, \$29.95.)

Philip Langdon has compiled a useful sourcebook for the design of contemporary houses. A sophisticated layout and excellent photography give the book an authoritative look, just the thing architecture students turn to when first given a housing problem. His survey presents a wide range of responses to problems being addressed by architects around the country.

In 1985-86 Langdon traveled the land looking at new housing schemes and talking to architects and builders about current issues in housing design. He concluded that much change is afoot. To reflect the content of these changes he organized his book into thematic sections: "Settings" or types of housing sites; "Forms and Features of New Houses," the largest section, which breaks down into units such as kitchens, master bedroom suites, roof plans as expressions of spatial organization, issues of scale, the changing nature of households, and the "New American House" phenomenon; "Energy and Climate," covering technical improvements related to energy conservation and the current status of solar design; "Construction and

continued on page 51

TOUGH STUFF



**About the only way
to wear out our roof pad
is to put it back on your truck
and run it for 40,000 miles.**

Made entirely of reprocessed rubber, our pad is the natural choice when you want superior durability and anti-vibration protection. It is also one very good way to put old tires back to work and avoid adverse environmental consequences.

**ROOF
GARD**

Humane Equipment Company Phone Toll Free 1-800-248-6263
P.O. Box 24, Baraboo, WI 53913 In Wisconsin Phone 608-356-8336

Circle 65 on information card

To keep your roof from coming apart, go to pieces.

We'd like to assume something for a minute. You put a roof over your head so you can stay dry. And warm. (Or cool, for those of you in more tropical climates.)

Now, if a roof is going to do all this, it has to be put together with all the right pieces. In all the right places. By all the right people.

Introducing the Stevens Hi-Tuff Plus™ Total Roofing System.

Hi-Tuff Plus is a fully-integrated roofing system.

We started with the membrane itself. (45 mils of white, scrim-reinforced Hypalon.*)

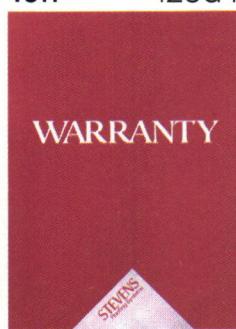
We included the most popular insulations. (100% UL labeled.) The fasteners. (Stainless steel and ceramic coated.) And the

roof-edge fascia. (In a variety of metals and colors.)

And that's not all, folks.

Once we got all the right pieces together, we made sure only the best applicators would be allowed

Our color-coordinated fascia has the edge in fighting high winds.



Our 15-year, 70 m.p.h. warranty covers all system components.

to put them together. So we picked our most experienced contractors and made them authorized Hi-Tuff Plus applicators.

They, in turn, make sure your roof meets our inspector's tough standards. For at least 15 years.

We'll back it into the 21st century.

O.K., so a 15-year warranty's nothing new in the roofing business. What is new is what it covers.

Our warranty doesn't just cover the membrane. It covers the insulation. The fasteners and plates. The adhesives. The fascia. And the workmanship. In short, every part of the system. Even against winds up to 70 m.p.h.

And if, within 15 years, your roof leaks, we'll fix it. Period. Paul Genest can tell you more. He can be reached at 413-584-9973.

All insulation is UL labeled.



Corrosion-resistant fasteners. What goes down won't come up.

STEVENS
Roofing Systems

© 1987 J.P. Stevens & Co., Inc., Roofing Systems,
395 Pleasant Street, Northampton, MA 01061

*Hypalon is a registered trademark of Du Pont.

Books from page 49

Craft," building materials and methods and industrialized housing; "Old Buildings, Modern Uses," the adaptive use of public and industrial buildings for housing; and "The Quest for Richness," the expressive qualities of housing design, including esthetic toning and receptivity to history.

Overall, Langdon is optimistic about what he's seen. He believes current housing design speaks to significant issues. Given that he surveyed mostly architect-designed, single-family housing, it is hard to assess what the impact of this work will be on the general market. Based on the book's more than 200 full-color illustrations and Langdon's text, the reader might conclude the following: housing design is presently less glitz than a decade ago; it is softer in appearance because of the frequent use of wood and its palette; it is wood-dependent for framing, cladding, and finishes; it has a preference for the gable roof; it relies a great deal on daylighting and continues to prefer interior vistas and interior/exterior spatial continuity; it celebrates a picturesque esthetic; it reduces the use of glass walls and reasserts the window; it reveals a bias for asymmetry and acknowledges a historical connection to cottage and bungalow forms.

Langdon reads the built environment well. His handling of the language of building and design is sound. When he errs he does so on the side of enthusiasm, seeing innovation where there is continuity. His appreciation for the current use of industrially produced building materials is hampered by his unfamiliarity with the long history of industrialization's effect on building. Likewise, he does not seem to recognize that modern spatial organization is a product of the last century. The vertical opening of interior volumes is contemporary but not exactly the latest thing. Langdon admires the craftsmanship in current building, but, if housing once again develops a wood-based esthetic, there will be a need for many more finish carpenters.

While most of the writing is descriptive, Langdon is not afraid to draw a conclusion about what he has seen. However, there is not much social dimension to his analysis. There is little discussion of how people live in these houses and no consideration of the issue of affordable housing. The illustrations are of houses for the white middle-class, and project a generalized esthetic and taste. And there is no assessment of the impact of women's issues on housing. Indeed, only a few women architects are represented in Langdon's survey; this is inappropriate given the historical role women have played in defining the American house. On the technical side, Langdon makes no mention of the so-called smart house, in which the industry seems to show some interest. —HERBERT GOTTFRIED

Dr. Gottfried teaches at Iowa State University's college of design. □

WITH LIGHTWEIGHT CULTURED STONE® YOU CAN ACHIEVE THE BEAUTY OF NATURAL STONE AT A FRACTION OF THE COST.



From the Cobblestone Collection: Buff Cobblestone, one of over 40 color and texture choices.

When your clients want the look, feel and durability of natural stone but cost or weight is a problem, consider Cultured Stone®. Its light weight allows for fast and easy installation with no additional foundations or wall ties required.

- listed in Sweet's: 04430/STU
- meets Building Code Specs.
- warranted
- cost effective — no additional foundations or wall ties required
- UL Listed — noncombustible

Call or write today for your free Architectural Catalog including: color All Products Brochure, Spec Data, Manu Spec and dealer information. (800) 225-7462. In Calif: (800) 445-9877. P.O. Box 270, Dept. 235, Napa, CA 94559.

CULTURED STONE®

THE HALLMARK OF EXCELLENCE IN MANUFACTURED STONE

By Stucco Stone Products, Inc.

No matter how colorful your design and no matter what your design considerations, you'll find Andersen Perma-Shield® windows beautifully compatible. They're available

IF WE HAVEN'T ALREADY DONE SO, PERMIT US NOW TO COLOR YOUR OPINION.

as Andersen High-Performance and High-Performance Sun glazings. Both are designed to detect heat and keep it where you want it, permitting the use of large glass areas for bigger views and maximum light.

There are other glazing options available, too. Your choice of tinted, reflective, safety, spandrel, decorative or double-pane.

In short, no matter how you color it, there's an Andersen glazing to complement any commercial design.

So if your opinion of Andersen windows until now has been otherwise, perhaps we have kept you in the dark too long.

Call 1-800-635-7500 for the name of your local Andersen commercial representative. Or write Andersen Commercial Group, P.O. Box 12, Bayport, MN 55003.

Circle 71 on information card



Andersen High-Performance (above) and High-Performance Sun insulated glass (below) are just two of the many optional glazings we offer.

**ANDERSEN
COMMERCIAL
GROUP**





88102 ©1988 Andersen Corp.

In building designs calling for a steel structural support system, the call for windows has typically been to metal.

But consider now, if you will, the atypical beauty of

Andersen Perma-Shield® windows.

Precisely, their ability to bring warmth and character to nearly any design. To enhance, not detract from, its integrity. Whatever the support system, whatever the facade.

It's a beauty that comes by design. Through smooth, simple lines; crisp, tight corners and a clean, functional look.

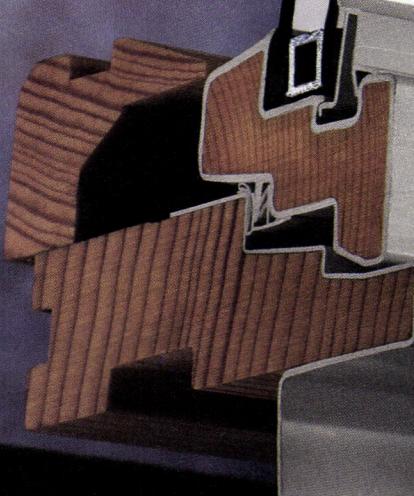
So whether you specify white or our Terratone® earthtone color, with clear, reflective or tinted glazing, Andersen Perma-Shield windows steal nothing from your design.

Rather, their beauty and compatibility are yours for the taking.

Call 1-800-635-7500 for the name of your local Andersen commercial representative. Or write Andersen Commercial Group, P.O. Box 12, Bayport, MN 55003.

Information card

WHEN YOUR STRUCTURAL SUPPORT SYSTEM IS STEEL, STEAL SOME BEAUTY FROM ANDERSEN.

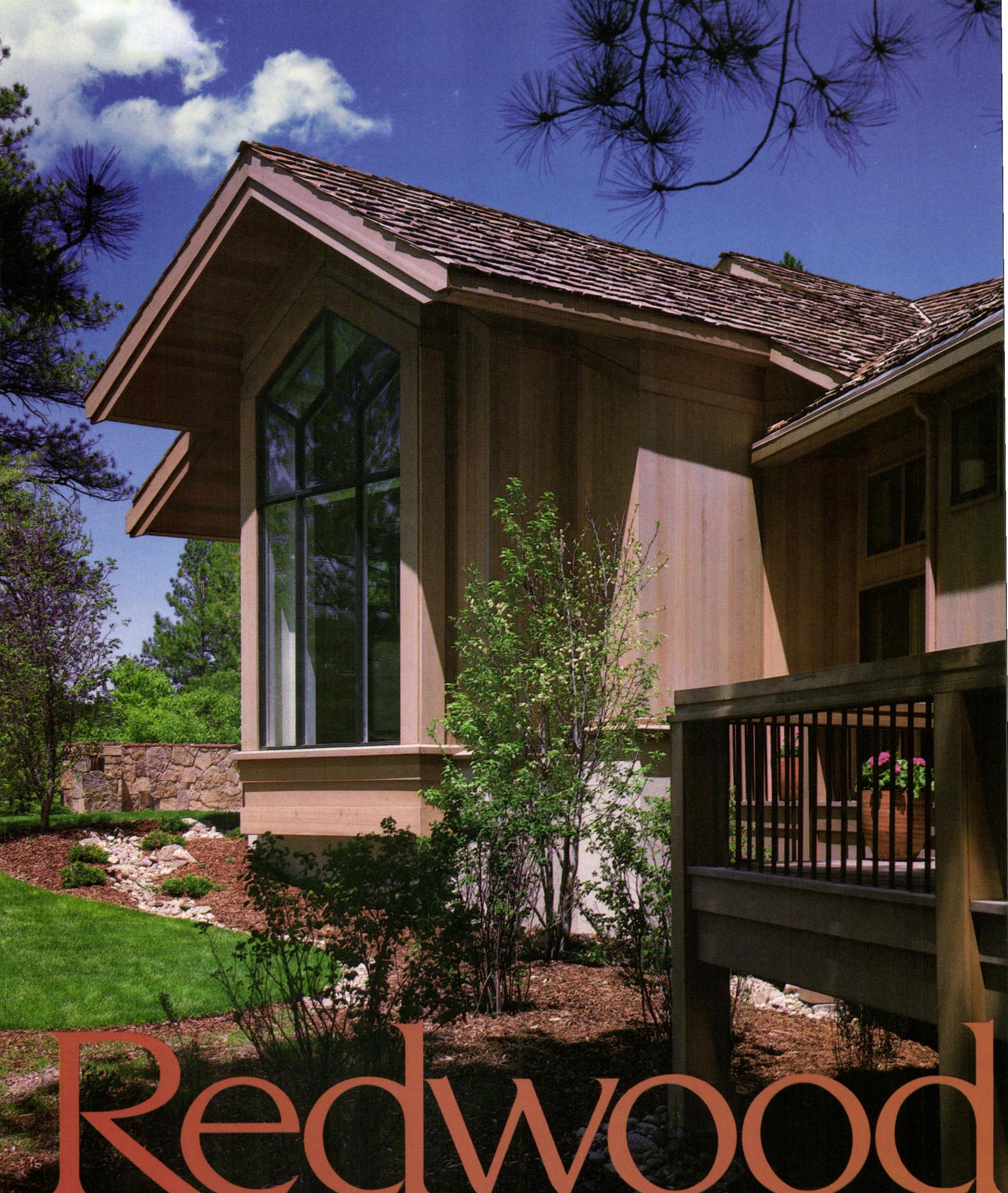


ANDERSEN
COMMERCIAL
GROUP™





88106 ©1988 Andersen Corp.



Redwood

Architects: Richard Jessup & Associates

Natural beauty, durability and stability make it the natural choice for creative designs that endure. Send for Redwood Architectural Guide.



CALIFORNIA REDWOOD ASSOCIATION 591 Redwood Highway • Mill Valley CA 94941 • (415) 381-1304
MILLER REDWOOD COMPANY • THE PACIFIC LUMBER COMPANY • REDWOOD EMPIRE, INC.

Circle 75 on information card

ARCHITECTURE

This issue is principally about that most basic of architectural concerns, shelter. It approaches the subject in a variety of guises: basic, life-sustaining shelter for the homeless; decent housing for low-income and/or elderly persons; some private houses for those not so low in income; a pair of regionalist hotels on two opposite coasts.

Architects have a role in providing all of these forms of shelter but, as the lead article points out, have only recently rekindled their concern for the first two. This is partly due to lack of a clientele. Basically, the client for housing the homeless and poor must be society at large. And our society has had other, more self-serving, things on its mind in recent years. That too may be changing, but very gradually. Meanwhile, it is heartening to see architects taking leadership roles in pushing for such change.

Last month, you will recall, our cover was graced by a work of art: call it architecture, sculpture, exhibit design, or a combination of the three. It was, of course, Frank Gehry's 65-foot-tall structure housing the centennial exhibit of the Sheet Metal Workers International Association at the National Building Museum in Washington, D.C.

Incredibly, the structure, built in January, at this writing is scheduled to be dismantled at the end of September. It would be all but impossible to take it apart and put it back together on another site (and what site would it fit, physically and esthetically as well as it does the museum's soaring atrium?). Museum officials feel it would be in the way of an inaugural ball expected to be held there for the new President, whoever that may be.

This is folly. The Sheet Metal Workers' structure is far and away the best thing that has happened to the quiescent Building Museum, whose offerings until now can most charitably be called modest. It would be a festive ornament to the ball and a wonderful testimonial to the President and his party of the art and craft of building. Isn't that something like what the Building Museum is supposed to be all about?—D.C.

Housing: Deepening Crisis and Stirrings Of Response

Architects and others reawaken their social concern.
By Nora Richter Greer

Across the country architects are awakening from their decade-long postmodern dream and in large numbers are turning their attention to social concerns. Nowhere is this more evident than in their growing awareness of the nation's severe affordable-housing crisis. In ways reminiscent of the 1960s, architects are now joining with others in their communities to design shelters for the homeless and longer-term, low-cost housing, to study the implications of codes and zoning on costs and quality, and to draft new low-cost housing standards and legislation. The long-term outcome is already evident: an approach to low-cost housing that is radically different—in both design and delivery—from earlier times.

The rumblings of a housing crisis began in the early 1980s when the number of homeless people started increasing dramatically. Now the estimated 250,000 to 4 million homeless are thought to represent only the tip of the iceberg; hidden are those on the brink of homelessness who have doubled up with relatives, live in decrepit buildings, or barely are able to pay the monthly rent. Predictions are dire: by the year 2003, unless some drastic steps are taken, 18.7 million people could be homeless, burdened with excessive rents, or forced to live in substandard housing, warns the Neighborhood Reinvestment Corp., a congressionally chartered public housing corporation. And the crisis is no longer confined to society's poorest. Homeownership among the middle class is declining for the first time since World War II. More often than not the only option is "trickle down" rather than "trickle up."

The causes of the housing crisis are complex; the culprits are found in both the private and public sectors. Urban renewal, gentrification, property abandonment, and arson have played significant roles in decreasing the number of available low-cost units. And, too, private sector developers for the past eight years have had little or no financial incentive to build or maintain low-cost housing and have all but deserted that market. Leading a

budget-deficit-weary Congress, the Reagan Administration has directed an almost total dismantling of the federal low-income housing programs. HUD's budget has dropped from \$35.7 billion in fiscal year 1980 to \$7 billion in FY 1988. New construction has virtually stopped, except for some housing for the elderly. The federal government is subsidizing approximately 90,000 new rental units per year, down from 300,000 new units yearly in the peak years of the 1960s and '70s.

On top of this, the present round of 15-year contracts that the federal government made with private owners of subsidized low-income housing under the Section 236 program will start to expire in the 1990s. Begun in the late '60s, Section 236 offered developers 1 percent mortgage loans, lucrative tax breaks, and in some cases rent subsidies. But developers were not encouraged to adequately manage and maintain the units. By the 1970s, corruption and default were rampant. In 1973, President Nixon froze all Section 236 housing starts.

In 1974 the Section 8 program was created to replace Section 236; under Section 8 owners receive a rent subsidy for the difference between the area market rate and the rent a family can afford based on its income. The private commitment was lowered to five years. Upon termination of Section 236 and Section 8 contracts, the private owners are free to convert their units into high-rent condominiums, sell their buildings, or tear them down. The General Accounting Office predicts a reduction of as many as 900,000 units by 1995 and an additional 800,000 by the turn of the century.

As the low-income housing market has shrunk, the vacancy rates for the 1.4 million public housing units have tightened to an all-time low—just 3 percent compared with 15 percent two decades ago. In many cities waiting lists exceed the total number of occupied units. And the public housing stock is in desperate need of repairs—as much as \$21.5 billion worth. Rather than focusing on renovation of existing units, the Reagan Administration has proposed selling public housing to tenants. Critics contend that those people are least able to purchase and maintain the units. The Administration also favors giving families housing allowance vouchers for rent payments rather than contracting with developers to create new low-cost housing. Critics contend this system doesn't guarantee the availability of low-cost units and, thus, does nothing for the "supply side."

Where the federal government has defaulted, state and local governments and nonprofit organizations have attempted to take over. Although their resources are limited and can never totally replace the federal government's, their creativity to put together shelter for the homeless and low-cost housing seems boundless. Unlike past federal housing efforts, these local groups are highly sensitive to the specific needs of different populations, the need for physical proximity to social services, and integration into the fabric of the existing community.

Some examples:

- Greater Miami Neighborhoods is providing development services to six neighborhood and citywide low-income housing groups. Since 1985 it has raised more than \$1.5 million from local government and the business community for loans, grants, and operating expenses, producing initial commitments for 266 dwelling units.
- Headquartered in Sacramento, Calif., and operating in 10 Western states, the Rural Community Assistance Corp. has helped local communities develop 20,000 units of housing, including 5,000 constructed using self-help techniques. The organization operates on grants and contracts from government agencies.
- In Baltimore, The Loading Dock Inc., a nonprofit salvage operation, collects donated new and used building materials for sale to low-income housing groups and nonprofit organizations at one-third the retail price. Donors receive tax write-offs.
- Since 1983, Massachusetts has allocated nearly \$1 billion for the development of state-funded low-income housing units. These are predominantly small-scale projects on scattered sites in two-thirds of the state's communities.
- Florida's Dade County has raised more than \$40 million for

housing assistance through a commercial real estate transfer tax.

- Maryland's Montgomery County provides zoning density bonuses to encourage the development of affordable housing projects. One-eighth of the units in new residential developments are to be set aside for moderate-income families. The county's tax on conversion of apartments to condominiums has raised \$30 million for low-income housing.

- In Tennessee the Chattanooga Neighborhood Enterprise, an alliance of city government and private lenders, has embraced a plan to make all low-income housing in the city—some 14,000 units—fit and affordable within 10 years.

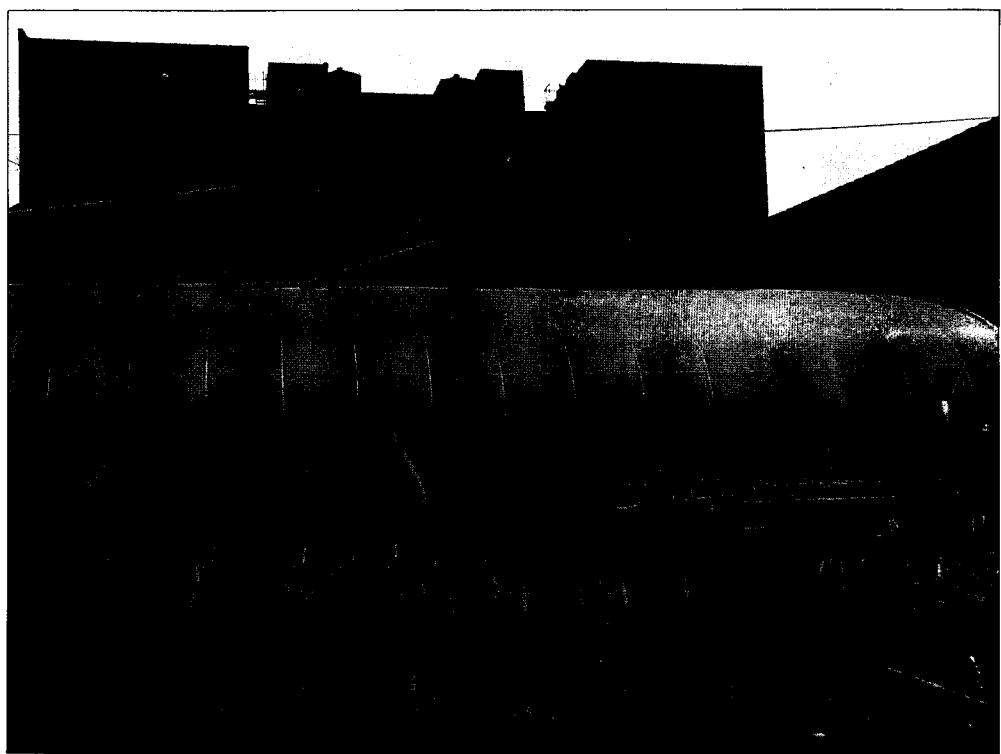
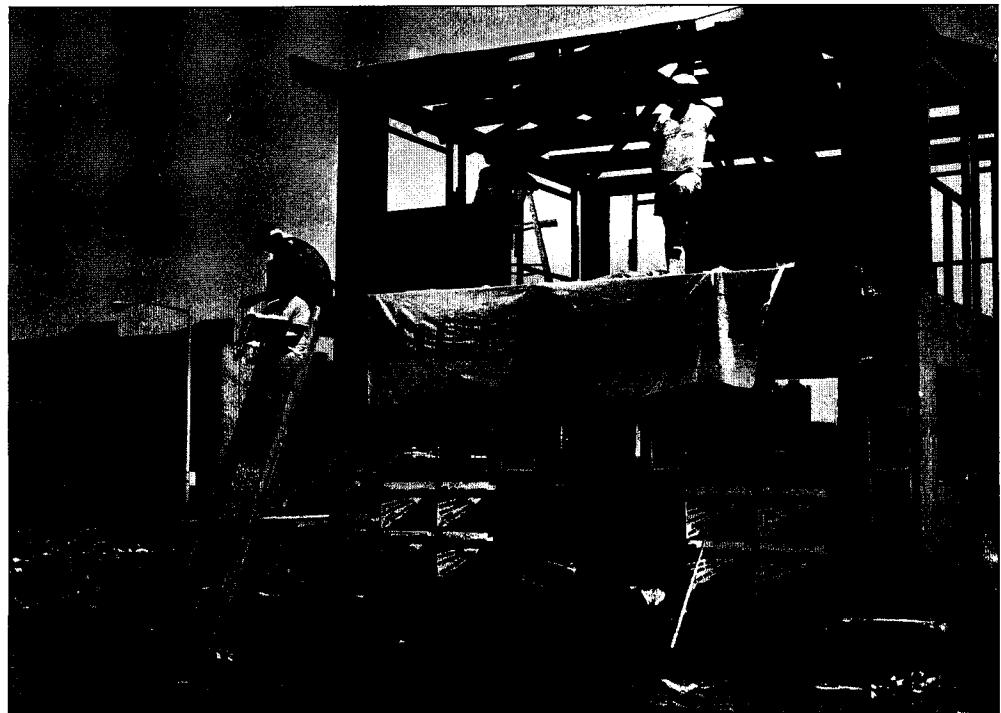
- The Local Initiatives Support Corp. is a national, nonprofit lending and grant-making institution founded in 1980 with initial capitalization from the Ford Foundation. It has provided financial and technical aid to 500 community development corporations for housing—including construction and rehabilitation of 14,000 units—and other physical and economic development projects.

- Founded in 1981, the Enterprise Foundation works with nonprofit groups to reduce the cost of rehabilitation and new construction and to lessen the cost of financing. The foundation's financial backing comes mainly from developer James Rouse's festival marketplaces. The foundation also assists local organizations in providing housing management and delivering social and employment services. The network includes 70 nonprofit groups in 27 cities and has produced 5,000 units.

- Formed in 1978, the Neighborhood Reinvestment Corp. is the umbrella organization of the Neighborhood Housing Services (NHS), which are located in 137 cities. The network also includes the Apartment Improvement Programs and Mutual Housing Association. Results to date include the rehabilitation of 58,000 units of affordable housing and construction of another 586 units on formerly vacant lots. Almost 3,000 tenants have received financial support and have purchased their homes.

These diverse groups are now becoming the clients of architecture firms that previously had designed federally subsidized housing. One is the Chicago firm Weese, Hickey, Weese. During the firm's first five years (1977-82), it designed 4,000 units of housing, the majority federally subsidized. When the federal dollars dried up, so did those commissions. Now the only low-income housing the firm is working on is the renovation of single-room-occupancy (SRO) units (where, typically, bathrooms and kitchens are shared) in connection with a small, neighborhood-based, nonprofit organization. Ironically, earlier in the 1980s, Weese, Hickey, Weese converted SROs into condominiums for well-heeled professionals. This, though, is not an isolated experience, for between 1970 and 1982 the nation lost more than a million SRO units, nearly half of its supply, to abandonment and arson as well as gentrification.

It is more unusual when an architect's past expertise in low-cost housing closely corresponds with current demands. Beginning in the mid-1970s, for example, the Boston firm of Goody, Clancy & Associates designed several mixed-income housing projects sponsored by the Catholic Church, with state and



Photographs © Maureen Fenelli

Above, signs of hope in the Bronx, New York City: a community demonstrates for decent multifamily housing and jobs (top), and a nursery sprouts on Bathgate Street (bottom).

federal financing—projects where the monthly revenue generated by the market-rate units helps subsidize the low-cost ones. Today the firm's mixed-income projects are largely financed by the state's housing trust fund.

A most natural ally to the nonprofit community development groups is the 35 community design centers (CDCs) located throughout the country. One of the first CDCs was founded in 1964 by a group of architects in New York City, the Architects Renewal Committee, formed to aid Harlem residents in combatting construction of a proposed freeway and other unwanted "improvements" in their community. This CDC and others became community design advocates, providing professional and technical support ranging from information on funding resources and management know-how to design assistance. The underlying theme was that communities should—and do—have a right to participate in the planning of their own environment. Through

out the 1960s and '70s many CDCs received federal funding and often were affiliated with universities or professional groups. Additional manpower came from architecture and planning students, volunteer architects, and VISTA workers (the former federally sponsored Volunteers in Service to America). At the peak, there were more than 80 CDCs.

An evolutionary pattern shared among CDCs is revealed through closer examination of the Pratt Institute Center for Community and Environmental Development in Brooklyn, as related by Pratt Center associate director Ronald Shiffman in *The Scope of Social Architecture* (Van Nostrand Reinhold, 1984). Founded in 1963, Shiffman says, the center was a "product of, and a reaction to, the urban renewal philosophies of the 1950s, and it was fostered by the promise of the social revolution of the 1960s. . . . Progressives in the housing movement who were reacting against government urban renewal policies were attracted to the civil rights struggle, to antipoverty efforts, and to the search for a more meaningful professional ethic. Together they set the base for advocacy architecture and planning."

Now, Shiffman continues, "the vision, promise, and goals of the 1960s may have been tarnished for some, but for us they remain intact. Some immature optimism has been replaced by greater pragmatism, reflecting a realization that the issues that concerned us were complex, and the information and technical capabilities we needed were more difficult to acquire than we originally anticipated."

It is perhaps the fiscal constraints of the Reagan revolution that have sent the most ripples through the community design centers. At Pratt, for instance, while the ideals remain the same, the atmosphere has evolved from a radical, grass roots aura in the late 1960s to a more entrepreneurial spirit in the late 1980s. In San Francisco's Chinatown, members of the Asian Neighborhood Design Center in the early 1970s began making custom-designed furniture for residents of SROs. Now, 40 people are employed for this task and the furniture is sold to other non-profit groups. With this newfound pragmatism, the CDCs have become "an even stronger voice in the community than when they were agencies supported by federal government grants," says Mary Comerio, founder of the Community Design Center and Center for Environmental Change in Berkeley, Calif.

Kathleen Dorgan, director of the Capitol Hill Improvement Albany Center Corp. in Albany, N.Y., has witnessed the closing of four of the seven CDCs in that state. "I'm saddened that a lot of the community design centers have closed over the last several years," she says, "particularly since we are beginning to rethink how to design and deliver low-income housing and how that housing fits into the community. If, as a profession, we let people decide that low-income housing is done better without architects, it is very hard for us to make the argument that others kinds of community projects will benefit from our services." Dorgan calls for a stronger commitment from the architecture profession to CDCs. "I am horrified about the personal commitment we ask the architects who now work in this field to make. I wish we could share that burden with the profession."

Last fall six CDCs participated in a national effort to raise consciousness among architects, architecture students and educators, other professionals, and the communities at large concerning the affordable-housing crisis, with emphasis on shelter for the homeless and those with special needs. In all, groups in 29 cities joined the "Search for Shelter" program (and even more groups are joining the program this year), which encourages participants to form these broad-based coalitions to closely examine the housing needs of each specific community. Often that process brings people together who have never before had a formal dialogue. "The Search for Shelter has been successful because it has focused on the fact that it isn't architects alone, but this collaborative effort that puts a facility together—the architects, the users, the service providers, the community, the financial packagers, the government representatives, and the developers," says Pratt's Cindy Harden.

In Chicago, the Search for Shelter effort was spearheaded by John Tomassi, AIA, director of the Chicago Architectural Assis-

tance Center. A series of panel discussions among an alderman, representatives of Chicago departments of housing and planning, a resident of a local mission, a woman who started her own shelter, and prominent architects, among others, has led to a citywide re-examination of the Chicago building codes that work against the development of affordable housing. "The Search for Shelter certainly opened up a lot of eyes in the Chicago architectural community and the local government. It was very unique in that respect," Tomassi says.

In Shreveport, La., the Search for Shelter workshop spurred the mayor into his first public recognition that there is indeed a problem of homelessness that needs attention. That workshop also brought a broader public acknowledgement that solutions need to be found soon and prompted a commitment from one of the city's leading developers to transform a dilapidated hotel into SRO units based on ideas generated by the design charrette.

Spnsored by AIA, the American Institute of Architecture Students, and the Neighborhood Reinvestment Corp., the Search for Shelter was designed in such a way that each coalition would set its own agenda. The results are as diverse as the communities themselves and reveal the unique qualities architects can bring to help mitigate the severe housing deprivation the homeless and nearly homeless experience. Nationally, the main goal was educational—to advance the dialogue on what is appropriate housing. Some 15 projects are slated for construction.

Following are highlights from some of the Search for Shelter workshops:

- In Phoenix the concept of dispersing small shelters throughout a region to ease community resistance was examined. The Phoenix task force chose three buildings to be renovated into SROs: a vacant nursing home in a residential neighborhood; an aging, centrally located motel; and a warehouse complex at the periphery of a reviving part of downtown. In all three cases a special effort was made to integrate the shelters into the existing fabric of the community.
- The Syracuse, N.Y., Search for Shelter task group planned the renovation of an existing SRO hotel to be undertaken in phases so as not to displace current residents.
- In Brooklyn housing for a mixed population was studied—an SRO for the elderly and transitional housing for teenage mothers and their children. It is hoped that the proximity of living quarters and the sharing of some spaces will promote foster grandparent relationships.
- One of the four problems Baltimore's Search for Shelter undertook was how to transform abandoned sections of alley-block row houses into emergency shelter. The solution called for linking the north and south rows to create a skylighted, all-weather community room.
- In Kentucky the housing needs of people in Appalachia were studied. The task group conducted a site analysis for rural low-cost housing, focusing on availability of indigenous materials, simplicity in construction principles for easy replication, and access to major roads.
- An in-depth examination of housing for the chronically mentally ill in the local community and elsewhere was undertaken by the task force in Boulder, Colo.
- The coalition in California's San Mateo County conducted a comprehensive survey of the county's housing for the homeless. This compendium would prove influential in the choice of building types to be the workshop's focus.
- To address the particular needs of homeless families, the Los Angeles Chapter/AIA organized a Search for Shelter competition. The challenge was to design a new village for 64 persons on a 30,000-square-foot lot. The accommodations were to be flexible enough to house, over time, families of various sizes.

The Search for Shelter results reveal a widening trend: the acceptance of shared housing as a low-cost alternative for certain populations. Shared housing is viewed as appropriate for individuals or families in transition from emergency to long-term housing. For long-term purposes shared housing can run the gamut

from the traditional single-room-occupancy hotel—where each resident has his or her own room but bathrooms, kitchens, and lounges are shared—to a single-family house renovated into a group home. Perhaps most suited to shared living arrangements are single men and women, the elderly, the chronically mentally ill, and single adults with children.

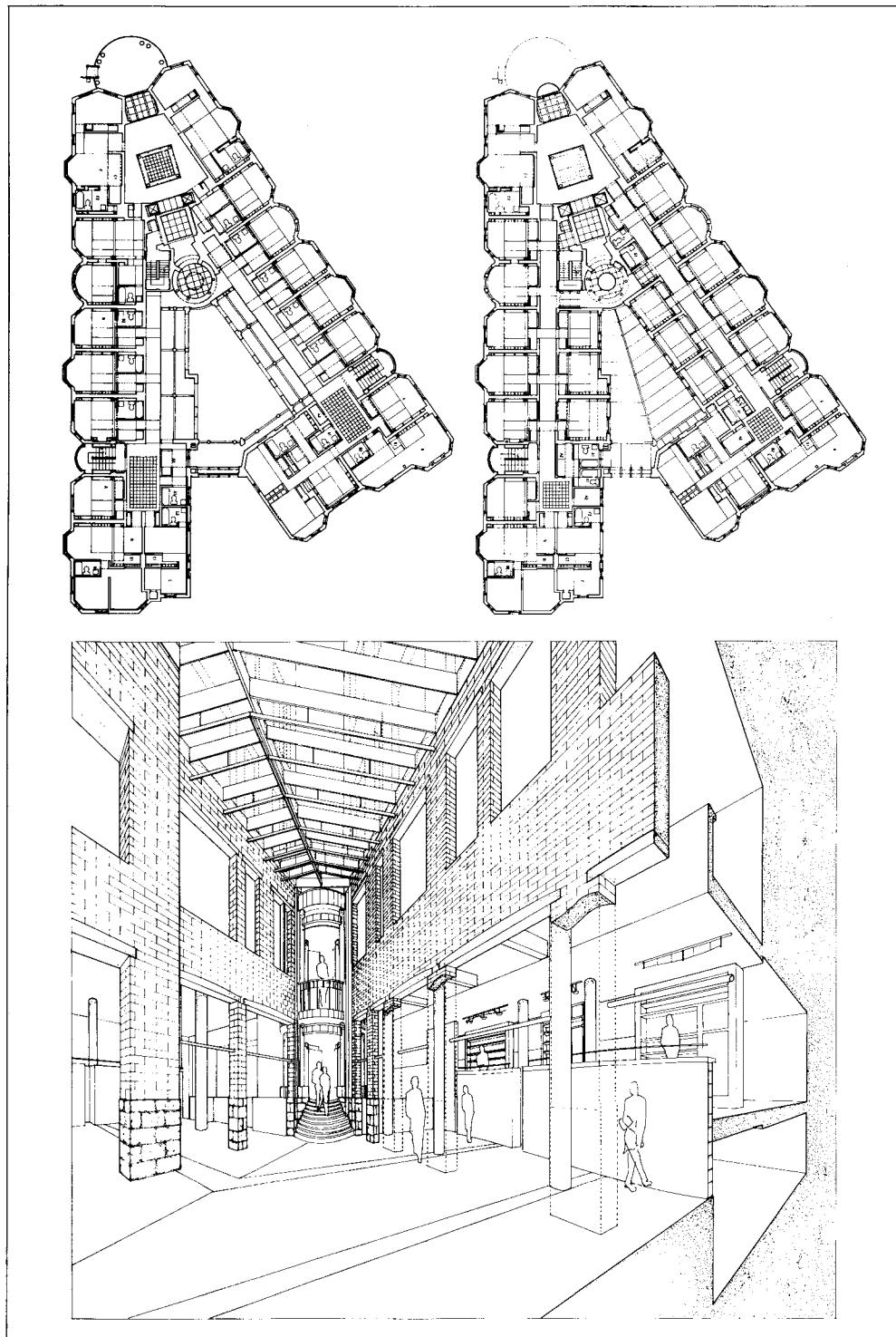
"There's no question that SROs are a viable, acceptable form of housing accommodation," says Conrad Levenson, whose New York City firm specializes in low-cost housing. "It's not the accommodation of choice for everyone. But for single individuals who do not want or cannot accept the responsibility or the cost of a full, self-contained unit, or who otherwise might benefit from the shared housing experience, it's a very desirable housing type."

The possible configurations of SRO buildings are endless, but certain design principles have been identified. The interior spaces vary according to the intended population. For example, the chronically mentally ill may require 24-hour supervision. Such an SRO facility would probably operate most successfully with small communal spaces, while SROs for single adults could more easily operate with larger lounges. Common spaces—both indoor and outdoor, if possible—are crucial, as is good management. Also important are in-house social services or the availability of such services nearby. Quality design—attention to space, light, form, scale, and proportion—can make a tremendous difference.

There is little doubt that SRO units are in demand and are valued by their occupants. In a newly renovated SRO building for older adults in Brooklyn, none of the new residents showed up the first morning for breakfast in the communal dining room, Pratt's Cindy Harden relates. Apparently the residents were so unaccustomed to having their own rooms—since most had previously been living in shelters or on the streets—that they just didn't want to venture out in case their rooms would be quickly taken from them.

In certain cities—New York, Boston, Los Angeles, San Francisco, Portland, Ore., and Seattle—the renovation of former flophouses or fancier residential hotels into SRO hotels is well established and codes have been rewritten to accommodate this type of housing. Sometimes odd juxtapositions occur, such as in Boston's Beacon Hill where the city plans to build an SRO facility on a parcel that has a beautiful view of the river. "I haven't heard any neighborhood objections," says Joan Goody, AIA, of Goody, Clancy & Associates. "Beacon Hill is stable enough that most people aren't frightened that a dozen people are going to make problems for them."

Placing SROs in new markets can stir heated debate over what the accepted standard of housing should be in this country. Some argue that ultimately trade-offs have to be made. "We have developed a housing standard that is beyond the reach of affordable housing in any way, shape, or form," Mary Comerio says. "We continue to make housing units that require, say, \$700 a month rent for a two-bedroom unit to be profitable. So the federal government through Section 8 pays \$600 of the rent and the tenant pays \$100." To Comerio, those economics just don't make sense anymore.



In Syracuse, N.Y., the Search for Shelter team proposed renovating a formerly elegant apartment building into a single-room-occupancy residence. The outdoor courtyard would be a lobby.

In 1987 Comerio headed a team from Berkeley's Center for Environmental Change in an investigation for the City of San Francisco into how seismic upgrading would affect low-income housing. The investigators found that most of the buildings in the city's Chinatown, Tenderloin, and Bush Street Corridor neighborhoods were unreinforced brick, built between 1906 and 1925. Recent structural engineering advancements have led officials in some areas of the state to retrofit such buildings to meet a higher seismic safety standard. But often the cost of seismic upgrading is so high that owners simply demolish their buildings. A change in the San Francisco code could affect more than 25,000 units.

The team concluded that seismic upgrading of \$5,000 to \$10,000 would add \$66 to \$198 to the monthly rent of each unit, a steep increase for low-income residents. In addition, the team predicted, a significant number of buildings most likely would be torn down.

"In essence," the team wrote, "anything but the minimal seismic upgrading would have a significant negative impact on building owners and tenants. . . . Changing the building code alone could cause more housing problems than it solves."

Space requirements are also being scrutinized. "We think of a minimum house as being 1,000 square feet," says Annette Anderson, of the East Tennessee Community Design Center in Knoxville. "I think we'll start looking at a minimum house as 600 or 700 square feet as the best way to reduce the cost of construction. We'll have to increase things like shared space."

Local codes can add unnecessary expense and aggravation to the rehabilitation of low-cost housing. Kate Lane of the Chicago-based nonprofit organization Bethel New Life recounts, "When we tried to do low-cost housing, I had to fight for an exemption to place a light bulb in a closet." The code discussion can get as specific as the precise number of electrical outlets that are needed in each room.

Perhaps most frustrating is renovating SRO units in regions where there are no longer, if there ever were, any code classifications for SROs or for other types of shared housing. New York State, for example, has a code for one- and two-family buildings. All other residential development falls under the multiple-family codes. As Dorgan has discovered in Albany, "You have to meet the same standards in a three-family house as you would in a 100-unit high rise. That is inappropriate and does away with the economies of doing three- and four-family housing versus one- and two-family units."

The debate over what are appropriate codes and standards is far from over, with new information constantly becoming available. For example, Goody recently made a surprising discovery in New York City through an assessment of a large housing development. "We concluded that it would cost exactly the same to build luxury and low-income housing on the same site with two exceptions. The low-income housing mandates bigger kitchens than you find in most luxury apartments, and the fancier finishes in the luxury units can cause the cost to rise up to 10 percent more than for the low-income units."

Goody believes that mixing incomes in housing developments and in neighborhoods is the wave of the future. "I think everyone has forgotten that in any normal city you have low-income people living around the corner from high-income people. In Paris, the low- and high-income live in the same building. Here, the aberration occurred after World War II when the middle-income people moved to the suburbs and we built housing projects in the cities. So, suddenly, you had huge low-income ghettos, which were identifiably different from anything else in the city."

Designed with what Goody calls "the best intentions at heart," those public housing projects failed as huge superblocks cut off from the surrounding neighborhoods and cities—the most notorious being Pruitt-Igoe in St. Louis. Now, when Goody renovates public housing the emphasis is on reintegration into the surrounding neighborhood. "The whole concept is to connect the housing back to the neighborhood in terms of the street system, in terms of the appearance of the building, and in terms of the way the apartments are organized within the building," she says.

If the housing crisis has a bright side, it is this rediscovery of integrated neighborhoods, of knitting small-scale projects into an existing community and mixing different socioeconomic groups. This trend is fueled by economics. Renovating what is already built can prove substantially less costly than new construction. Given the magnitude of the housing crisis, every possible resource in cities and in the countryside needs to be tapped—buildings and vacant lots owned by a city through default, vacant lots owned by private developers who are willing to part with them at a low price in return for tax benefits or special development rights, or buildings that no longer serve their original functions and are vacant. Strong community resistance (nicknamed NIMBY for "Not In My Back Yard") can magnify the need to weave the new low-cost housing into the existing neighborhood fabric.

"Scale is crucial," says Herb Oppenheimer, FAIA, whose New

York City firm Oppenheimer & Vogelstein has been involved in housing design since the firm's inception in 1960. "This is where perhaps the modern movement really lost its way concerning social housing. They believed an enormous heroic scale, like Pruitt-Igoe, was appropriate for low-income families. Now, we are working at a much smaller scale, working to integrate the new or renovated housing into existing neighborhoods, existing social context and economic conditions. It is working to restore buildings rather than to tear them down in the name of urban renewal."

For Kathleen Dorgan, "one of the most important things is attention to the front of the building," so that the low-income housing is indistinguishable from the neighboring middle- or upper-income units. Donlyn Lyndon, FAIA, of Lyndon/Buchanan Associates in Berkeley suggests that federal public housing programs created "incentives for the mindless replication of approved patterns." He said in a 1984 article that "individual dwellings must have some evident relation to a larger community. To be prudent it makes more sense to fit new housing in among existing communities and to weave a common place than to isolate and segregate new construction from old, subsidized or not. The constraints of a specific site become assets in the creation of identity."

In Massachusetts, for example, brick public housing built in predominantly clapboard neighborhoods sticks out like a sore thumb. "So if we are building anew," Goody says, "we try to use the vernacular siding; when we are renovating we cover parts of the brick. And if the surrounding neighborhood is predominantly town houses facing the street, then we try and create that town house feeling at least at the base of the building."

Gaining access for low-income housing into most wealthy communities remains nearly impossible as local zoning laws sustain the divisions. By requiring minimum building area and lot sizes, maximum lot coverage quotas, and single-family zoning, local laws can lock out even group housing for the chronically mentally ill and the elderly. Ironically, however, zoning can also be a tool to encourage the acceptance of low- and moderate-income housing; for example, density bonuses and development transfer rights can be given to housing developers who provide low-income housing in certain "closed" neighborhoods.

The philosophical discussion centers on whether this country needs to reaffirm the individual's right to decent housing. Such a pledge was made in 1949 when Congress decreed that all Americans had the basic right to decent housing. "We can talk about standards, organizations, management, design, but the situation is not going to get better until we believe that everybody has the right to a decent place to live. There needs to be a major reordering of our national priorities," Anderson says.

"People have a right to affordable housing that is sensitive to their individual needs," Harden says. "As far as the physical design of the space, architects are the appropriate people to provide that, but it is important that architects don't think they can do the whole project alone without any input from community members, service providers, and users. And there needs to be a long-term commitment from architects to address the complex housing needs."

Upon surveying the situation for the homeless in New York, New Jersey, and elsewhere, Oppenheimer and his colleagues "were absolutely shocked by what we were seeing," he says. "It seems that, when people in this country become aware of the human crisis of homelessness, the tendency is either to ignore it or rush to the aid of the poor. . . . Not with decent housing, but in the cheapest possible way they set up dormitories for 1,000 in armories or they use some kind of prefab housing that is half the quality of housing standards—like putting 30 people in a room without any operable windows!"

To reinforce the urgency of addressing the crisis, Oppenheimer and associates in the New York Chapter/AIA authored a resolution for AIA's recent national convention challenging the Institute's commitment to seeking solutions to the affordable-housing crisis. Passed unanimously by the convention delegates, the resolution requires the continuing support of AIA "to call upon Congress and the President to enact a new National

Affordable Housing Act with the goal that every American be decently housed by the year 2000." This housing should be "well designed with attention to livability, adequate space standards, durability, quality construction, cost effectiveness, and encouraging neighborhood vitality." A national task force will be created to oversee this effort and other AIA affordable-housing programs, including the Search for Shelter.

Work is already under way on the creation of a new national housing policy. To be introduced in Congress in 1989—and, therefore, with the next President and Administration in place—that legislation is being developed under the auspices of Senators Alan Cranston (D-Calif.) and Alfonse M. D'Amato (R-N.Y.), the chairman and ranking minority member, respectively, of the Senate subcommittee on housing and urban affairs. It is believed that the provisions of that housing legislation will revolve around recommendations of a national housing task force chaired by James W. Rouse, Hon. AIA, the Columbia, Md., developer who founded the Enterprise Foundation, and vice-chaired by David O. Maxwell, chairman and chief executive officer of the Federal National Mortgage Association.

After extensive hearings, the Rouse-Maxwell task force last April recommended that the federal government become a partner in the local, state, and nonprofit efforts to increase the permanent supply of affordable housing. Basically, a federal housing opportunity program (HOP) would provide federal funds to local, state, and nonprofit partners, which in turn would raise matching funds. This decentralization of the federal role in creating affordable housing is already occurring and has been loudly applauded by housing experts. The \$3 billion, first-year addition to the HUD budget that the Rouse-Maxwell task force recommends, however, is considered modest at best. To get ahead of the growth in homelessness, the National Housing Institute recently reported, 7.5 million new low-income housing units will be needed by the year 2000—at a cost of \$300 billion. In comparison, the federal government spends, through the mortgage interest deduction, about four times more on middle- and upper-class housing than on housing subsidies for the poor—a total of \$34 billion in fiscal year 1987.

Among other Rouse-Maxwell recommendations are these: a recycling of federal funds; the delivery of HOP funds with "maximum flexibility and minimum regulation"; greater emphasis on preserving and improving existing low-income housing; a commitment from the federal government to a complete modernization of the public housing inventory; and the use of federal tax incentives to encourage private investment.

Meanwhile, the enlargement of the new American underclass continues. Robert Hayes, founder of the National Coalition for the Homeless, calls it "a Darwinian struggle for housing. And the weak are losing." It isn't just the stereotypical "bums" or the poorest of the poor; the crisis has reached working people and families, even those once considered securely positioned in the middle class. The statistics—and the reality—are shocking. In its annual survey of hunger and homelessness in 26 American cities, the U.S. Conference of Mayors found in 1987 that one-



© Maureen Fenelli

Woman resting at the church beneath Citicorp in New York City.

third of all the homeless in those cities were families with young children—young children whose lives could be forever tarnished. If statistics don't make you a believer in the severity of the crisis, just visit the public emergency shelters in any large city. It can be a horrifying journey into a world that more closely resembles a prison camp than a safe and warm haven.

"In the 1980s housing has become the great divider of the haves and have-nots," writes Robert Kuttner, economics reporter for *The New Republic*. "A have is somebody who owns his own house, and effortlessly increases his net worth as the value of the house inflates. A have-not is a tenant of moderate means, vulnerable to a shrinking supply of rental housing, the threat of condo conversion, and steadily escalating rent costs. Homelessness is only the most graphic emblem of a drastic shortage of affordable housing."

What is needed is apparent to all: more decent, affordable shelter. And, who more than architects should be involved with the creation of shelter? □

A One-Architect Movement for Affordable Housing

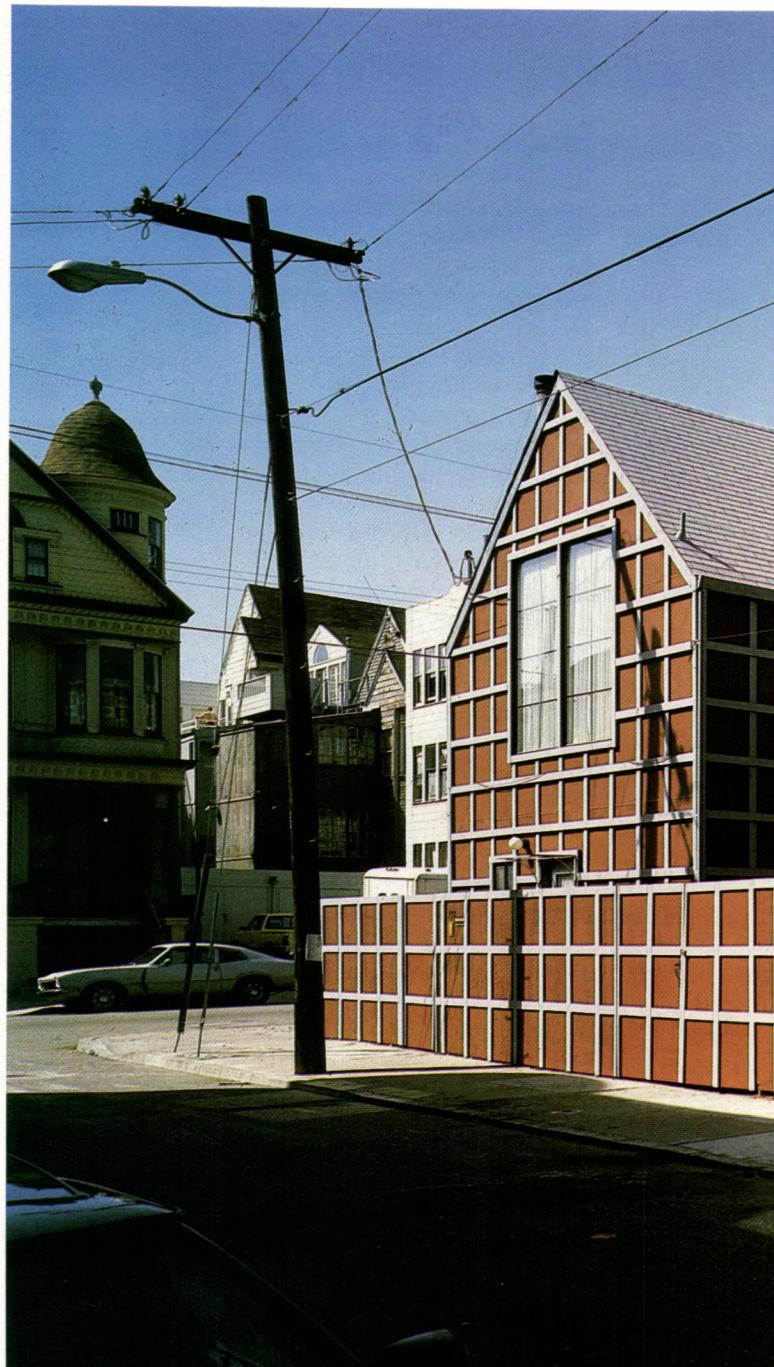
A practitioner turns developer.

By John Pastier

San Francisco is a uniquely attractive city, and people are willing to make sacrifices to live there. Architects, knowing a good place when they see one, have settled there disproportionately to the demand for their services and are willing to accept a reduced level of earnings in return for a higher psychic standard of living. And since professional training isn't required to understand the city's charms, people from all walks of life have bid up the price of in-town residential real estate to the point where it is now higher than in any other city of comparable size.

This situation has inspired an unusual venture by Donald MacDonald, FAIA (who last year designed and built prototype "city sleepers" for the homeless—see July '87, page 20). MacDonald took up development on the side "to offset [his] low compensation as an architect." The businessman sensed a need at the lower end of the price scale for what he calls "starter houses." The architect formulated design and implementation strategies that promised to reduce costs sufficiently to permit first-time ownership by a broader population. Over the last six years he has designed, developed, and marketed 10 infill projects comprising 57 single-family units, and a responsive marketplace seems to have vindicated his assumptions. What follows here, therefore, is not only a story of design but a more complex tale of economics, politics, and bureaucratic process, as well as an inquiry into the basic nature of urban shelter.

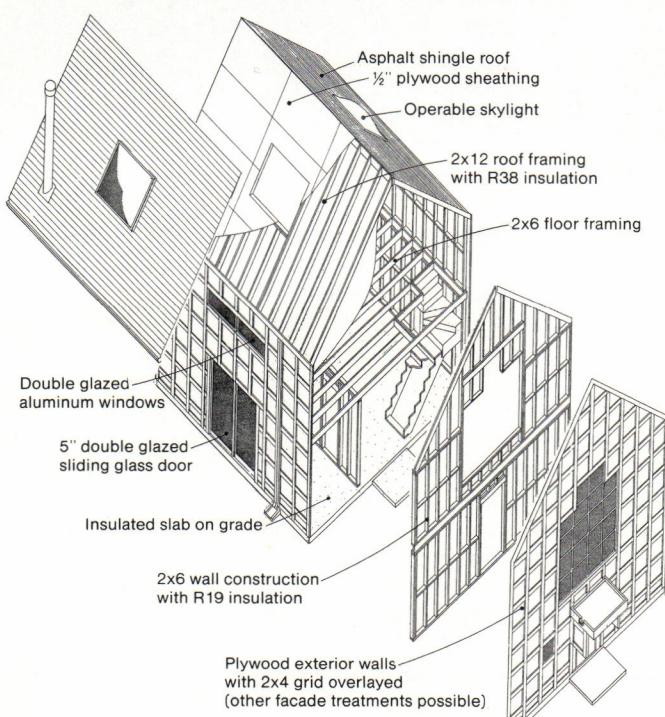
Most of MacDonald's projects are near the geographic center of the city, about a mile from City Hall and two miles from downtown in a district of nebulous identity. Names such as



Left, and above, MacDonald's Germainia Street houses.

Duboce Triangle, Western Addition, and Lower Fillmore have been suggested by various persons, but none with total conviction. The units are tiny, from about 600 to 960 gross square feet including garages, and their offering prices have run between \$115,000 and \$165,000. In most places such costs would be outrageous, but in San Francisco they are relative bargains. New housing usually sells for about \$200 per square foot; MacDonald's units have, until recently, been around \$150. The comparatively low cost per square foot, combined with adamant downsizing, has resulted in new-housing prices below any others in town.

The size of the units raises the question of what constitutes basic shelter. MacDonald strongly believes that availability of housing—preferably with ownership—is the quintessential factor and that orthodox notions about size and layout are of secondary importance. In his acceptance speech for an affordable-housing design award recently given by the Michigan State Housing Development Authority, he declared that "we accept as gospel that there has to be a bedroom for every two people, that a bedroom has to be at least 80 square feet in size, that there has to be 'living' space, that there should be a bathroom for every two or three people, that ceilings must be at least eight feet high in most rooms. We do not question zoning laws that





© Henry Bowles

set the minimum residential lot size at 2,500 square feet. We have developed a mythology of space—a middle-class mythology."

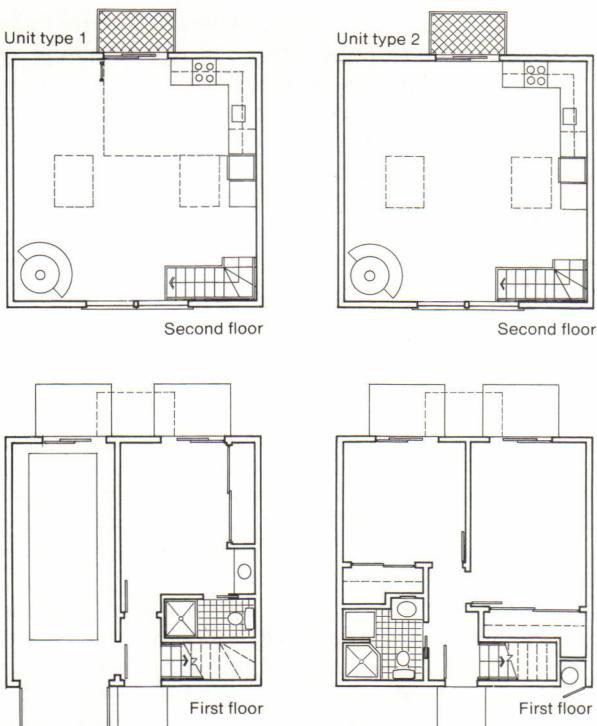
Somewhat paradoxically, MacDonald extols the middle-class idea of property ownership even as he rejects the middle-class idea of space and use standards. To him, renting is a form of second-class citizenship, while owning a home is the key to American life. He subscribes to the view that, after a person has acquired real property, it is possible to capitalize on accumulated equity and improved personal finances and trade up to better quarters in time. This seems an acquisitive view of the world; if one can question conventional ideas about living space, then certainly one can challenge the middle-class mythology that elevates possession over the right of use. Here, MacDonald is the pragmatic businessman rather than questioning designer. He recognizes that we are living in the acquisitive '80s and that the California housing market has become frustratingly difficult to enter. According to one recent "wish list" survey, buying a home was the primary desire, even above good health, among people in the 25-to-34-year age bracket.

To meet this demand, MacDonald developed an ingenious structural prototype: a two-story, 20x20-foot box with a steeply pitched roof. The ground floor contains a bedroom, bathroom, stair, and, if the site permits sufficient parking space, a second bedroom. Otherwise, a one-car garage is provided instead. (If the owner of the house doesn't use a car, the garage can be con-

verted into a long, narrow second bedroom.) The second floor is a single open space with a pitched ceiling containing living and dining areas, an L-shaped kitchen in one corner, and a fireplace ("the soul of the house," says the architect) in another. There is an oversized window in one gable wall and a smaller window opposite. Above that second window is a low-ceilinged sleeping or storage loft reached by ladder.

This prototype, which MacDonald has called a "garden cottage," has multiple advantages. The box form eliminates the need for special seismic reinforcing. The small size, of course, reduces costs. The 20-foot dimensions work well with plywood sizes and standard stud spacing, and the span and roof pitch permit inexpensive framing—2x6 structural members are the largest needed. The square shape minimizes exterior walls and permits flexible site and interior planning, since doors and windows can be on any of the four walls and the second-floor plan can be rotated with respect to the first "like a Rubik cube." The open second floor eliminates the cost of interior partitions and creates some sense of spaciousness, as does the oversized window, in what is after all a tiny house.

These Monopoly houses may or may not have the character of garden cottages, depending on site conditions. Sometimes they are freestanding in close proximity; more often they are set in rows. MacDonald usually does not use a lot's full zoning capacity, since that would require building on a deck over a parking



structure and would lead to higher construction costs and mandate an apartment/condominium layout. Instead he works with on-grade units and as much open parking as possible, limited by rear-yard requirements that can sometimes consume 25 to 40 percent of his smaller sites. Even when built in rows, his houses are actually one inch apart. By virtue of being detached, they can be owned outright rather than as condominiums, and thus owners can make any internal or external changes they wish without their neighbors' approval. But the land beneath the houses is owned in condominium form, since the units would not meet the lot requirements for single houses.

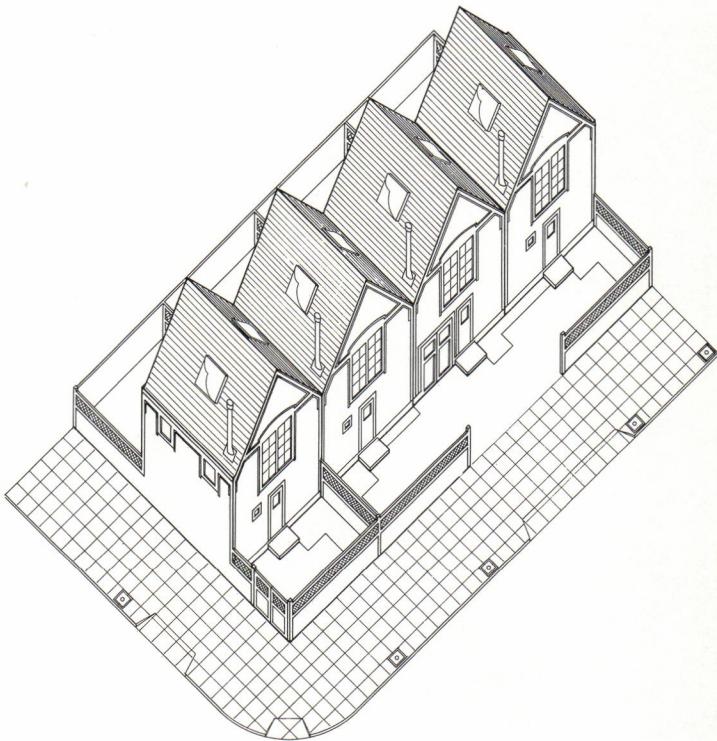
MacDonald finds that this arrangement yields him as much profit as would building more units at higher density and greater unit cost, and he feels that this lower density and scale are better for the city. Other routes to economic efficiency include using nonunion labor in a strong union town; using the smallest, thinnest, and cheapest material that will do the job; building in transitional zones between minority and gentrifying neighborhoods; selling the units himself rather than using real estate brokers; and designing not only to meet the building code but also in a way that will expedite the approval process.

MacDonald has also developed other prototypes. One is a narrower and deeper row-house configuration that features flatter roof slopes, gabled dormers, and quasi-bay-windowed fronts. This form is less successful architecturally than the cube for several

Below, the Hermann/Steiner Street houses, a grouping of four of MacDonald's prototypical 'garden cottages.' The interiors reflect the diverse life styles and tastes of the residents. The open living space is set within the steeply pitched ceiling of the second floor; oversized windows and skylights provide abundant natural light and create a sense of spaciousness. A corner loft for sleeping or storage is reached by a ladder.

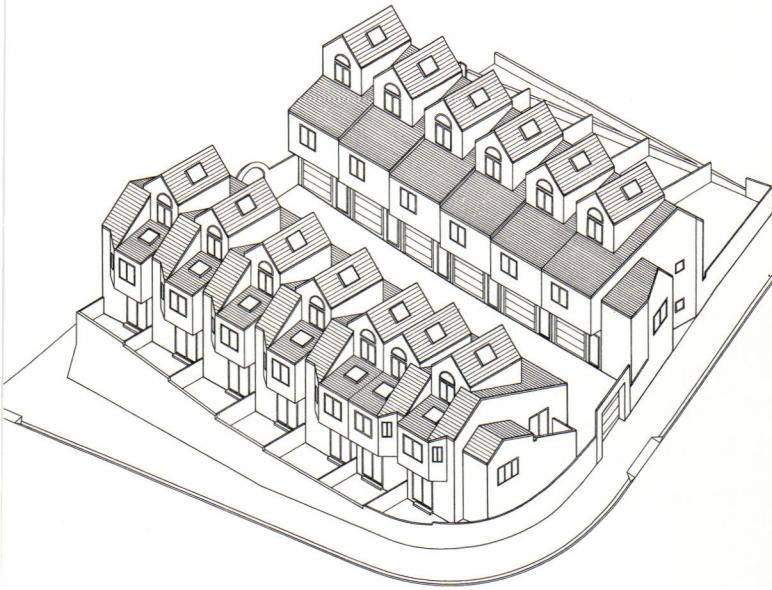


© Bob Hsiang

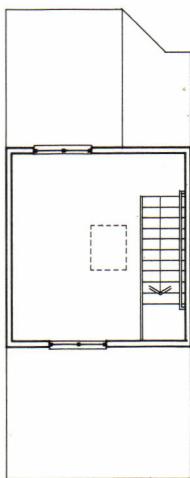


© Magnus Stark

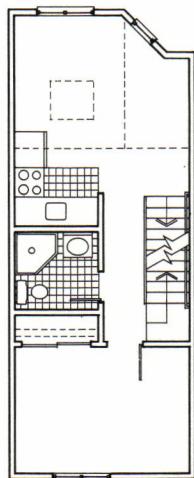




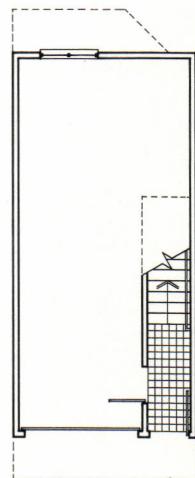
First floor



Second floor



Third floor



Facing page, MacDonald's longer and narrower prototype configuration is clustered in two rows of seven houses at a project at 17th and Clayton streets. Left, two typical interior arrangements.

reasons. The bays do not respect established San Francisco forms and proportions, and the buildings do not maintain the street wall as well. The ground floors are not very pedestrian-friendly, since they are made up primarily of garage doors and are devoid of windows. In one project the garages face a central space, but the street frontage is a security wall. In short, this prototype seems better suited to suburbia or to the city's outer fringes.

The third prototype is part of MacDonald's most recently completed project at Duboce and Steiner streets. It is a narrower version of the original cube, with a footprint of 12x20 feet, arranged in a row of four. (The rest of the development consists of two rows of three standard cubes.) MacDonald says that if this version sells easily he will next try a 12x12-foot prototype. The idea is intriguing, but the reality is daunting. The present smaller units at Duboce/Steiner embody the space standards of early British mill workers' housing and are suited only to single people. The ground floors are taken up by stairs and garages, leaving perhaps 300 square feet of actual living space upstairs, including a sleeping perch just big enough to hold a queen-size mattress. This configuration would be fine for a houseboat or vacation home, but it leaves much to be desired as a permanent city residence. These buildings are jammed together—the rows of larger units are only 12 to 15 feet apart while the rear of the smaller units abuts the side of one large row and is only 10 feet from the other. (The San Francisco zoning code

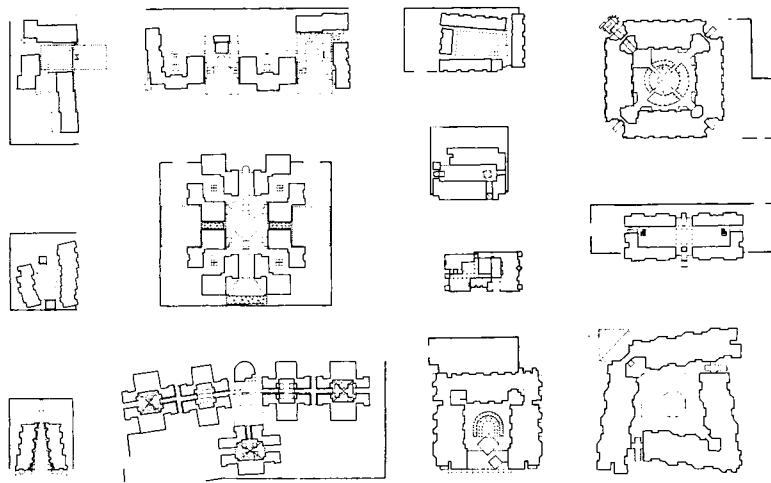
does not spell out any minimum spacing between dwellings.)

At roughly 65 units per acre, this project is far denser than the other cube developments that range from about 31 to 45 per acre and average about 37 per acre. Fortunately, the smaller units overlook a park across the street. The economics of this project are also less attractive than those of their predecessors—the smaller units are being offered at \$126,000 and the larger ones at \$165,000, or just about \$200 per square foot. At an open house, people inspecting the larger units were generally disappointed in the offering. "This is scary," said one, while another announced that "this tells me that I won't be moving soon." A third said, "I think I'll buy a house on a Greek island instead."

There are several reasons for this apparent 33 percent jump in cost per square foot over MacDonald's other projects. Removal of toxic waste soil on the site amounted to about \$6,500 per unit, and an unusually long approval process also added to the expense. One of MacDonald's cost-saving techniques is never to seek zoning concessions because to do so slows down the development process and because "community groups want too much in return." But in San Francisco such groups can play a strong role even in the approval of fully conforming developments if they object to a project's esthetics. At Duboce/Steiner they argued that MacDonald's usual gridded plywood exteriors would not be harmonious with the largely Victorian surroundings. In their argument they overlooked the presence of a much larger and

Now that the developer has perfected his economic strategies, perhaps the architect will be able to fine-tune a building form that, for all its simple ingenuity, still has considerable unrealized potential. □





Caring Design of Assisted Housing

Yorkshire Terrace, Los Angeles, John V. Mutlow. By John Pastier

Los Angeles is the United States' second-largest city. Its population growth of 1.2 million since 1950 has led the nation, and it has high housing costs and possibly the largest homeless population in the country. It also has a moribund public housing agency. Public housing development was halted by a referendum and city council vote during the 1950s that reduced the agency's role to that of a controversy-plagued caretaker of existing properties.

Low-income housing demand has been met in other ways. The most common and least palatable has been deprivation. In far too many cases living conditions have deteriorated as slumlords have let their properties run down to intolerable levels. In one of the most notorious recent cases a Beverly Hills neurosurgeon was sentenced to live in one of his rental units for a month. There is a steady attrition in supply; single-room-occupancy units have declined by 15,000, or roughly half, and altogether 4,000 housing units a year are lost to the wrecker's ball. Many older low-rent units have been demolished by landlords unwilling or unable to bring them up to seismic codes. In the next 18 months, 50,000 apartments in unreinforced masonry buildings will have to be reinforced or vacated. The cost of reinforcement is about \$10,000 per unit, which equates to a monthly rent increase of \$150—often impossible for low-income tenants.

Even now, to meet monthly rents that can exceed a dollar per square foot in modest inner-city buildings, two and even three families will share a small apartment. Countless illegal rental units are tucked into corners of single-family houses, and 40,000 Los Angeles County households reside in garages. According to Gary Squier, the recently appointed city housing coordinator, 500,000 Angelenos pay more than half their income for housing. That number is sure to rise in the near future when nearly 19,000 units built 15 to 20 years ago will have their federal subsidies expire. According to Squier, "We have more and more working poor but fewer apartments for them."

There have been structured approaches to Los Angeles's low-income housing problem. Several programs of the federal Department of Housing and Urban Development have provided rental assistance for families and the elderly. Unfortunately, funding for these programs has been cut 75 percent by the Reagan Administration. The State of California has a housing program, but its annual budget amounts to only 50 cents per resident. The city

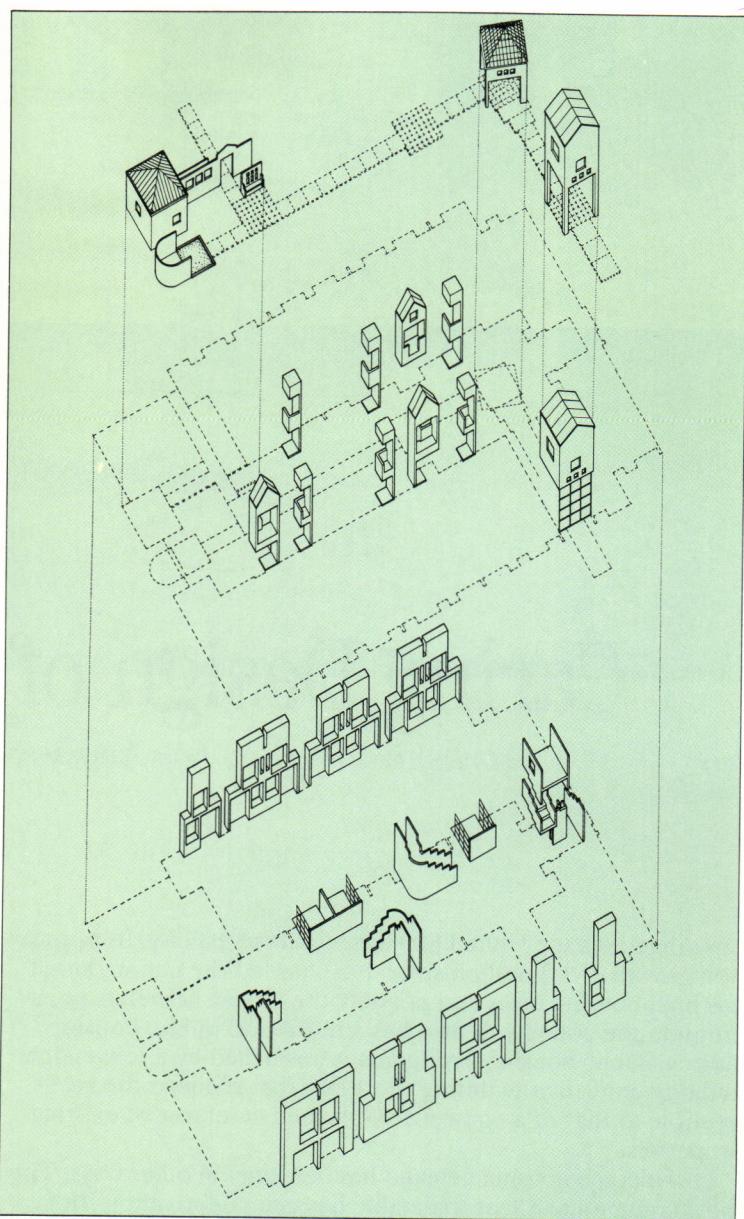
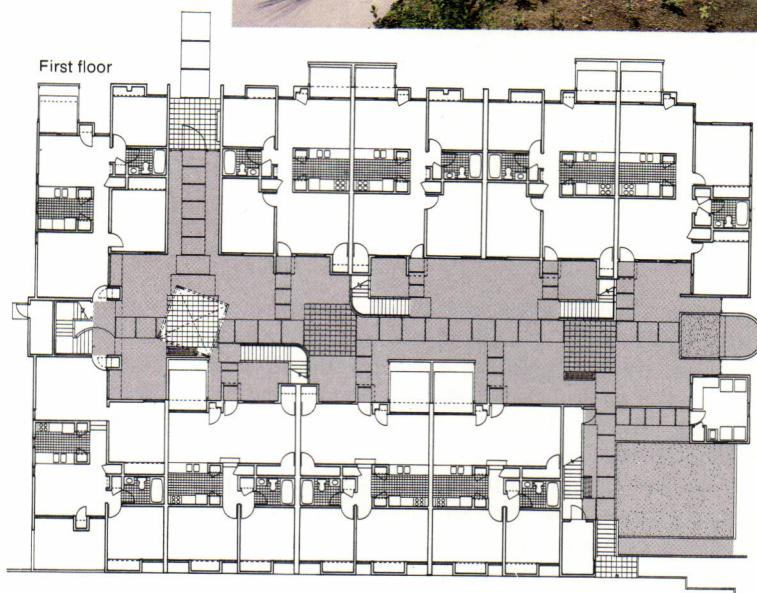
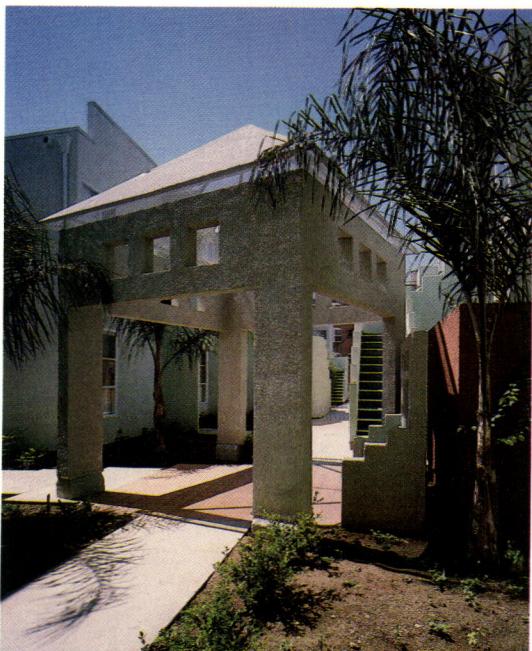
has created a blue ribbon committee to develop housing policies and strategies, and its Community Redevelopment Agency and Community Development Department, unlike the Housing Authority, currently assist in creating low- and moderate-income housing. The city is also seeking to raise \$20 million from the private sector to start a housing fund.

Yorkshire Terrace, an 18-unit infill project in the inner city's largely Hispanic Pico-Union community, is a product of three of those programs. It falls within the boundaries of a redevelopment district and was developed by the Pico-Union Housing Corp., an offshoot of the Pico-Union Neighborhood Council. Between them, these two local nonprofit groups have initiated 11 housing projects during the last 16 years. The redevelopment agency provided monetary assistance in the form of "re-use appraisal," a euphemism for land cost write-down. And HUD provided construction insurance and gives rental assistance that bridges the gap between personal income and market-rate rentals.

John V. Mutlow, the architect of Yorkshire Terrace, has close familiarity with the neighborhood and nonprofit housing. When fresh out of graduate school he was the Pico-Union Neighborhood Council's director of planning and housing from 1969 to 1973, and since 1972 he has designed nine projects in the district, all built under sponsorship of the housing corporation or neighborhood council. Yorkshire Terrace is one of the smaller ones, but it is relatively complex and ambitious in its intentions.

It stands within a largely intact enclave of sizable Victorian wooden residences, some of which have been rehabilitated by the Community Redevelopment Agency. Three such houses on contiguous 50x150-foot lots were deemed uneconomic to restore and were demolished several years ago to create the Yorkshire Terrace site. The redevelopment plan allowed 28 units, just half the normal zoning maximum, but only 18 were built, in part because Mutlow felt that two stories should be the maximum height of a project intended for families. Other factors determining the density were a typical 800-square-foot unit size for two-

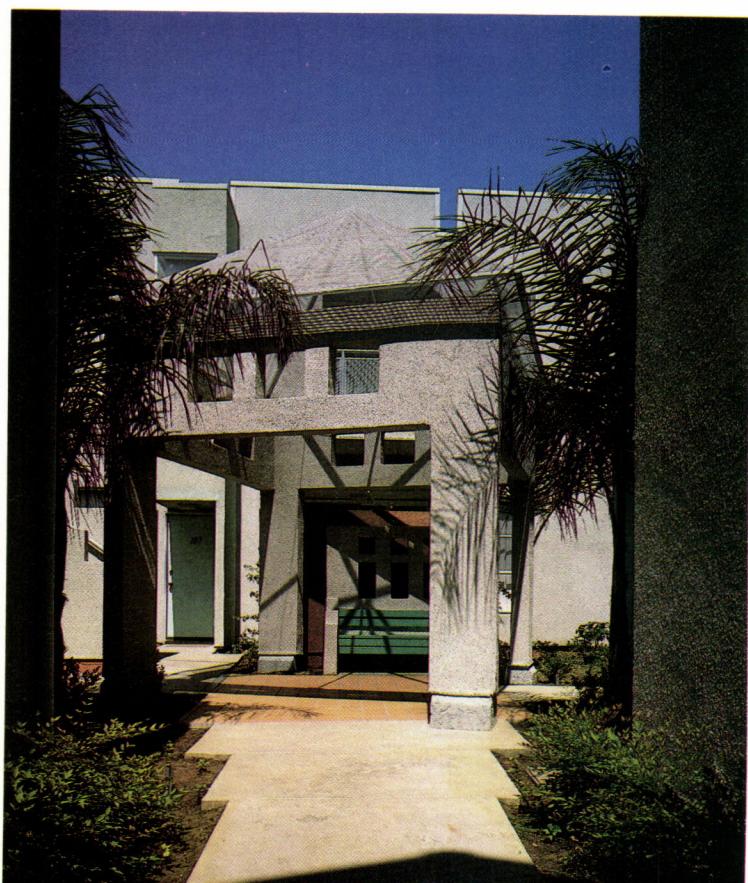
At the top of this page, site plans of similar Los Angeles housing projects, most of which are within one mile of Yorkshire Terrace. Facing page, the interior walkway in the courtyard at Yorkshire Terrace. Walled patios for some units face the courtyard; for others, patios are on project's perimeter.



bedroom apartments, parking requirements and the decision to use about a third of the site for open parking, and a HUD decision to remove two planned units to provide an outdoor play area.

The courtyard form has a long history in Los Angeles housing, and Yorkshire Terrace is one of many Mutlow projects exploring that typology. Such courts normally run perpendicular to the street, but this one is oriented parallel to the frontage. The parti is thus one of four parallel bars: proceeding inward from the street, there is a solid band of front apartments, the landscaped void of the courtyard, a solid band of rear apartments, and the void of the rear parking area. One row of cars is parked under the rear bedrooms. To this basic armature Mutlow has attached a variety of sculptural elements. A 30-inch-deep zone on each facade contains closets, bay windows, and recesses for other windows and entrance doors. These also articulate the facades and break down their scale, but in a way that suggests the expression of individual units while actually joining similar rooms of different units. Walled patios project beyond this zone, some facing the street and others the courtyard. In the latter space, solid stair elements lead to the second-floor units, and a skewed gazebo marks the off-center axis of the main entrance.

At the street, that entrance is surmounted by a large gabled element whose bottom floats 15 feet above grade. All entrances to individual apartments are off the courtyard, and some of the upper ones are marked by smaller gables. (These gable forms are an abstracted response to the porches of the old houses across the street.) The various planes are set off by color: the stucco patio walls and courtyard benches have a terra-cotta tone, doors and metal screens at the main entrance and sides of the patios





Photos on facing page show the skewed gazebo in the courtyard. Situated near the end of the long axis of the interior walkway in line with the entrance axis, it is drawn in dotted outline on the project's ground-floor plan. Exploded axonometric shows, from top, horizontal circulation; sculpted forms on courtyard facades; and vertical circulation within courtyard, and perimeter facades. Above, gable on street facade reflects nearby houses.

are pale turquoise, and the stucco surfaces of actual building elements are three different (but barely distinguishable) shades of pale green. The courtyard landscaping, designed by Barrio Planners, is simple yet deft; because the trees are still small, its full effect probably won't be felt for another 10 years. By then the entrance axis will be flanked by a short but impressive avenue of king palms.

The apartment plans are of two basic types. The band fronting the street has parallel living and sleeping zones running from back to front, with the living rooms facing northwest into the courtyard and the dining rooms facing southeast toward the street and the sun. Kitchens and bathrooms occupy a band in the center of these units. Two of the rear units also follow this pattern, but the other six have their bedrooms at the rear, overlooking the parking, and a single large room for living and dining facing the courtyard. The lower units have 10-foot ceilings in those large rooms because the floor steps up two feet at the kitchen and bathroom to enable cars to be parked beneath.

Despite the discipline and occasional ingenuity of these plans, the apartments seem to lack something in the flesh. The rooms, built to HUD minimum sizes, which are also HUD maximum sizes, are small. Living rooms are 12x14 feet, and the smaller

bedrooms are about 10x10. With roughly half the rooms facing northwest, and most of the windows either recessed 2½ feet or shaded by stair walls, the interiors tend to be dark.

Materials, construction, and maintenance also present problems. Forms that are solid and precisely defined on paper turn out to be flimsy looking and slightly haphazard when observed in reality four years or so after construction (and after photography). The culprits here are the materials and building techniques that are standard in Los Angeles. Stucco on wood stud construction equates to an uncontrollable and impermanent material sheathing an indifferently assembled frame. Although virtually new, the stucco already has been visibly patched and discolored in several places, destroying the subtle color variations that the architect intended. The handsome and nonstandard window frames have begun to lose their trim as sloppy workers replace broken glass and leave lumpy caulking uncovered.

All this goes to prove that some forms of architectural practice can exceed the profession's already high quota of frustration. John Mutlow's accomplishment is not spectacular, but it is considerable. He has managed to design economically (these units were built for about \$42,000 each, or about \$50 per square foot) and conscientiously, meeting the various public agency limitations and respecting context, energy considerations, and local tradition as well. In the process he has created a space that provides a sense of community and security. Perhaps the greatest frustration about Yorkshire Terrace is that there isn't enough of it to go around; metropolitan Los Angeles should be building two or three projects of this size every day of the year just to maintain the status quo. By not doing so, it is building up a social debt that is certain to come due soon. □

'Gentry Rural' Look in Elderly Housing

*Annie Maxim House, Massachusetts, KJA Architects.
By Robert Campbell, AIA*



It is the shame of our society that at the richest time in our history we find no way to create affordable housing for the needy. Since the abrupt departure of the federal government from the housing scene more than a decade ago, less and less has been done. In the Boston area, there have been a couple of good recent projects developed by trade unions for occupancy by their own members—moderate-income, but by no means low-income inhabitants. The City of Boston now requires developers of downtown office space either to build housing in the neighborhoods or to contribute to a fund for that purpose. But these and other initiatives are just getting under way. All are a drop in the bucket compared with the need.

With institutional programs failing or stuttering, much is left to private beneficence, as manifested in Annie Maxim House in the village of Rochester, Mass., near Cape Cod. Annie Maxim was the wife of a local cranberry magnate, George Cowen. She died before he did, and in his will, some 25 years ago, he left money to build, as a memorial to her, housing for the needy elderly living in Rochester and nearby towns. Trustees of the will invested the money, watched it grow, and eventually built the present project. The architects are Barry Korobkin and Eric Jahan of KJA Architects of Somerville, Mass.

The tenants at Annie Maxim average 70 years in age and must be able to take care of themselves. No staff live on the premises, although a caretaker and cook are in a farmhouse across

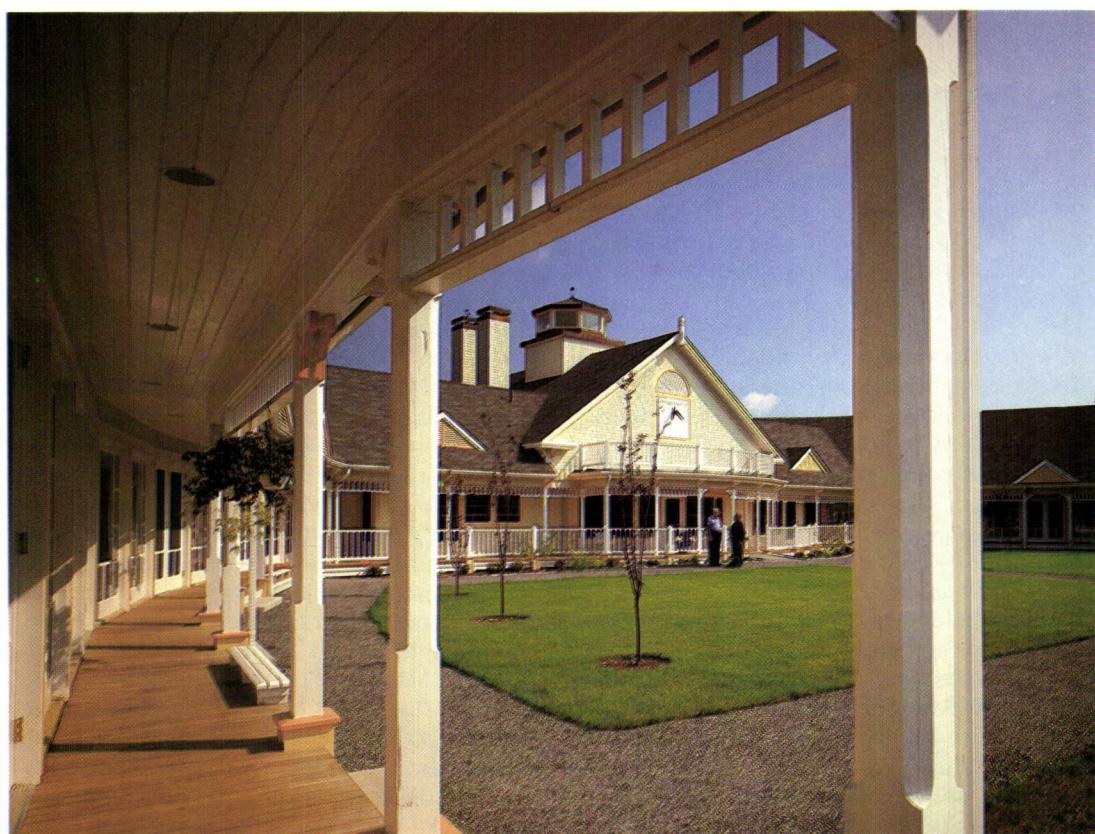
the road and a manager is present during working hours. Most of the residents drive their own cars. Dinner is served in a common dining room; other meals are up to the residents.

Annie Maxim House takes the form of a horseshoe open to a lawn and lake to the south. Each half of the horseshoe has six apartments, all essentially the same, which can function as either singles or doubles. In the middle is a generous suite of common rooms. There are now 17 tenants; they pay no rent, although some make voluntary contributions.

The site is an isolated one of 250 acres surrounded by woods. In this isolation one thinks of Annie Maxim's horseshoe shape as being like cupped hands protecting a flaring match from the wind. Annie Maxim generates and protects the spark of life.

That spark is brightest in the public suite. Activity flows naturally into these rooms along the corridors from the apartments. The rooms nourish social interaction, but without any hint of coercion. They are intimate without the emptiness of institutional space, and they offer choices. You can sit down in the dining room for dinner or hang out in the kitchen over coffee. You

Above, the architect's adaptation of the stable type, appropriate to its rural setting of 250 wooded and meadowed acres, evokes images of New England's agrarian past. Facing page, the extended horseshoe arms of the southern elevation provide residents with a sheltered gathering place.



Photographs © Steve Rosenthal

'What a House Should Look Like'

Reid residence, Cleveland Heights. Centerbrook Architects. By Allen Freeman

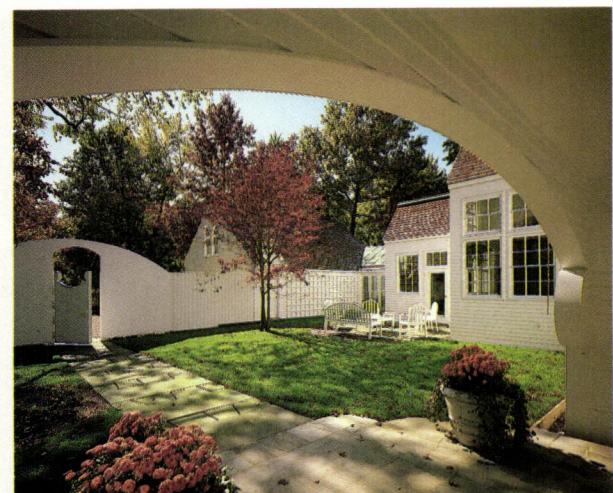


Photographs © Peter Mauss/ESTO

First a little history. Twenty-seven years ago in the close-in, wealthy suburb of Cleveland Heights, James and Donna Reid commissioned a Cleveland architect to design a house. One story, flat-roofed, and presenting the appearance of a garden wall to the street, the modernist design was rejected by the local three-person architectural review board as incompatible with surrounding early-20th-century colonials, Georgians, and Tudors. The Reids sued Cleveland Heights, lost, and lost again on appeal. That house remained unbuilt, but *Reid vs. Cleveland Heights* was established as a landmark case affirming the rights of architectural review boards to make esthetic judgments.

A quarter of a century later, for the same site, the Reids had no problem gaining approval for the design of this very different style of house by Jefferson B. Riley, AIA, of Centerbrook. While the Reid house isn't literally contextual to Cleveland Heights, it is, like other houses by Riley, thematically harmonious in bits and pieces to certain conventional notions of what a house should look like.

But the Reid house most suggests not a conventional house



but a slightly exaggerated carriage house or stable that might have been built behind one of the big-deal mansions with their manicured, picture-postcard lawns.

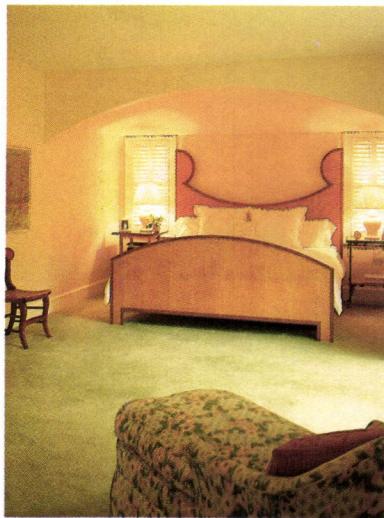
With virtually no street presence, the house sits back on its lot, mostly concealed from North Park Road by unfussy landscaping and by an eight-foot-high wooden fence. You approach via a short gravel drive and enter through an arched garden gate into an intimate courtyard formed by the vertically slatted fence and the clapboard front of the house. The latter stretches out in segments like additions to a New England saltbox and folds in plan into a J shape. The recessed front porch echoes the garden gate and establishes a motif—flat arch supported on voluptuous volutes—that repeats within the house.

Unlike the khaki color of the rest of the exterior, the walls facing the courtyard are white; Riley says his notion was to make it an outdoor room. Perfectly flat and enclosed above the walls by mature trees, this room is furnished simply with a single large tree, three young dogwoods, simple white wood patio furniture, and a big, friendly, stone chimney pulled away from the house

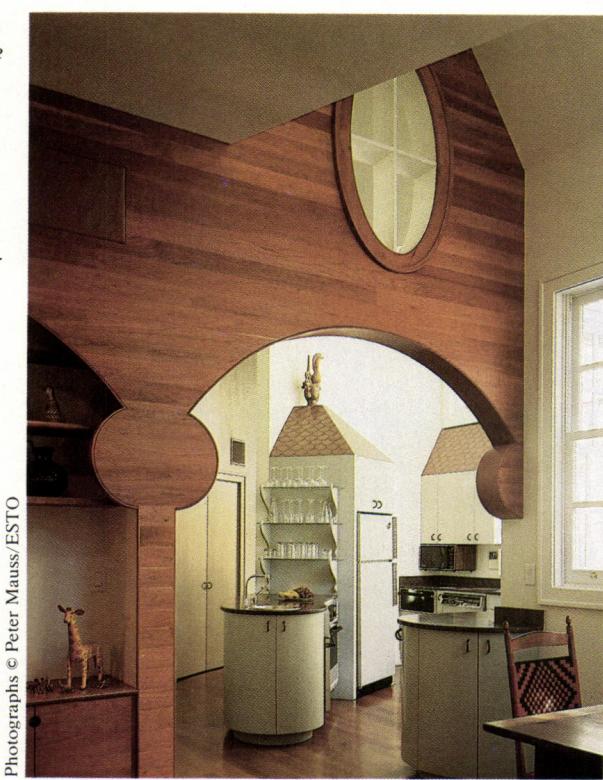
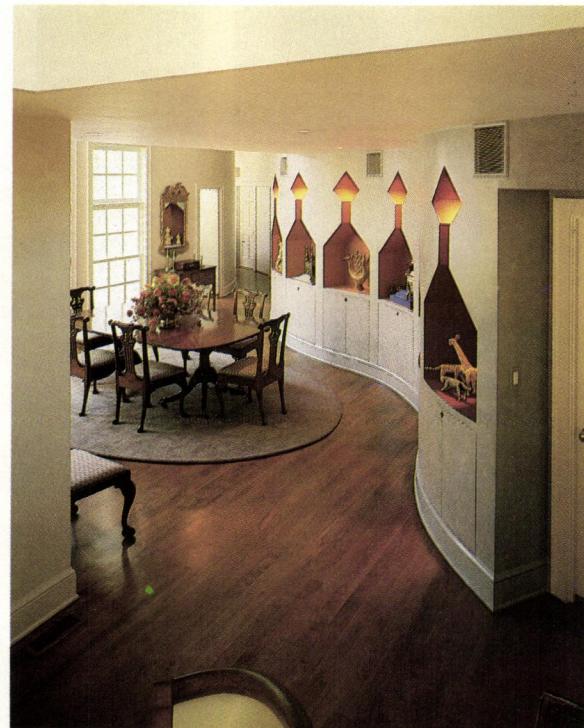
In large photo, dining room and its undulating wall are visible through windows at left; living room with chimney is at right. Top and middle photos show courtyard. Immediately above, the back side; large clover window is on axis with front door.

and pleasantly filling one corner like an armoire. On the ideal spring day of my visit, one could easily visualize breakfast in the nook off the kitchen, dinner guests with cocktails about to enter the French doors into the dining room, or grandchildren romping across the grass.

The Reids are empty-nesters who lived for many years in a nearby 1920s Georgian revival mansion. They wanted an “accordian” house that would seem cozy for a couple but could comfortably accommodate out-of-town friends and family, and a living room large enough to entertain 35. Riley relegated the overnight guests to four modestly sized upstairs bedrooms that lie in tandem along the rear elevation. Interior windows off the upstairs corridor open down into the living and dining rooms, a nifty internal relationship between sleeping and communal areas.



In photo of living room, far right, the fireplace is pulled toward the front of the house and the stone chimney is visible through skylights and clerestories. The sofa, tables flanking sofa, and mantle were designed by the architect. Right, a view from the den into the kitchen; above right, the dining room from the front hall. Above, master bedroom with Riley-designed bed in arched alcove.



Photographs © Peter Mauss/ESTO



The living room is a whopping 32x21 feet, but the longer dimension is visually cut in half by the shelflike underside of the second story and by furniture groupings. At the end of the room toward the front of the house, the space soars to a complicated ceiling formed by the underside of a shed roof interrupted by a couple of dormers plus a lower skylight above the fireplace. The effect of these dramatic changes in ceiling height is exhilarating from all vantages save one: from the fireside benches, the unrelieved lower ceiling and the vertical plane rising to the higher ceiling seem intrusive. Nonetheless, there is much to praise in the room, including four ample exposures and Riley-designed bookcases, end tables, couch, and a mantle/fireplace of cherry wood and black marble.

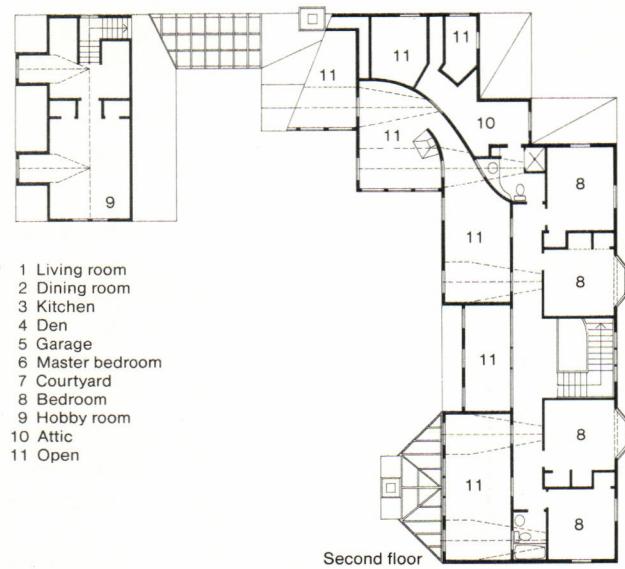
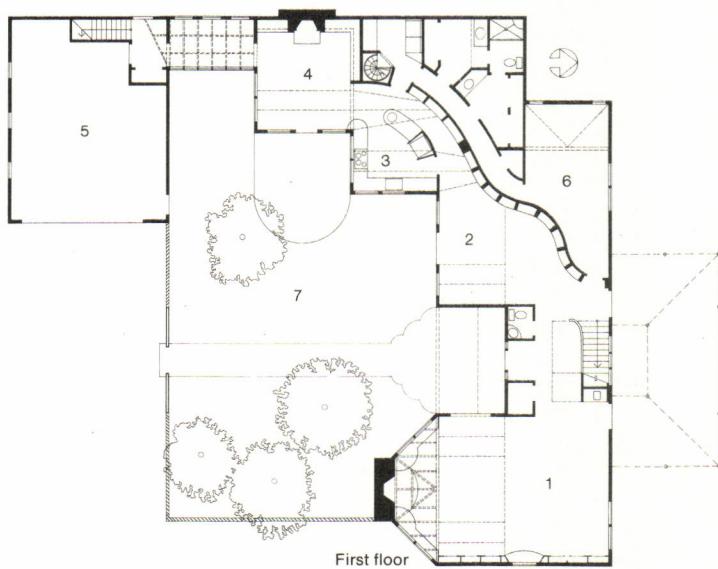
One might also fault the idea of the staircase, opposite the front door, as overstated for ascent to a second story of smallish bedrooms, but the execution is fun and beautiful, set off by an enormous clover window on the rear elevation.

The dining room is the best space in the house—it can seat 20, yet seems intimate—and the relationship between it and the

kitchen and the den seems ideal. Riley designed a fat, undulating wall extending along the back of the dining room and kitchen and punctured it with nine niches for Mrs. Reid's collection of Mexican folk art. (References to Charles Moore's Wonderwall for the New Orleans World's Fair and to Moore's interest in Mexican art are entirely intentional, Riley says.) Dining room and kitchen are double height, while the den that opens into the kitchen scales down to a cozy single-story height. Beyond the den is a greenhouse passageway to the garage, above which is Mr. Reid's hobby room.

The master bedroom is modest, distinguished by the sensuous back side of the undulating wall (accentuated by a soft flesh color) and by a Riley-designed bed whose broad curves obviously go with the house.

Interior/exterior design relationships are everywhere, making the house seem remarkably cut from a single cloth. That was accomplished in large part by an architect/client relationship described by both as very harmonious. All good architects should be so blessed. □



- 1 Living room
- 2 Dining room
- 3 Kitchen
- 4 Den
- 5 Garage
- 6 Master bedroom
- 7 Courtyard
- 8 Bedroom
- 9 Hobby room
- 10 Attic
- 11 Open

Regionalism, But with Many Inventive Twists

House in New Mexico.
Antoine Predock, FAIA.
By David Dillon



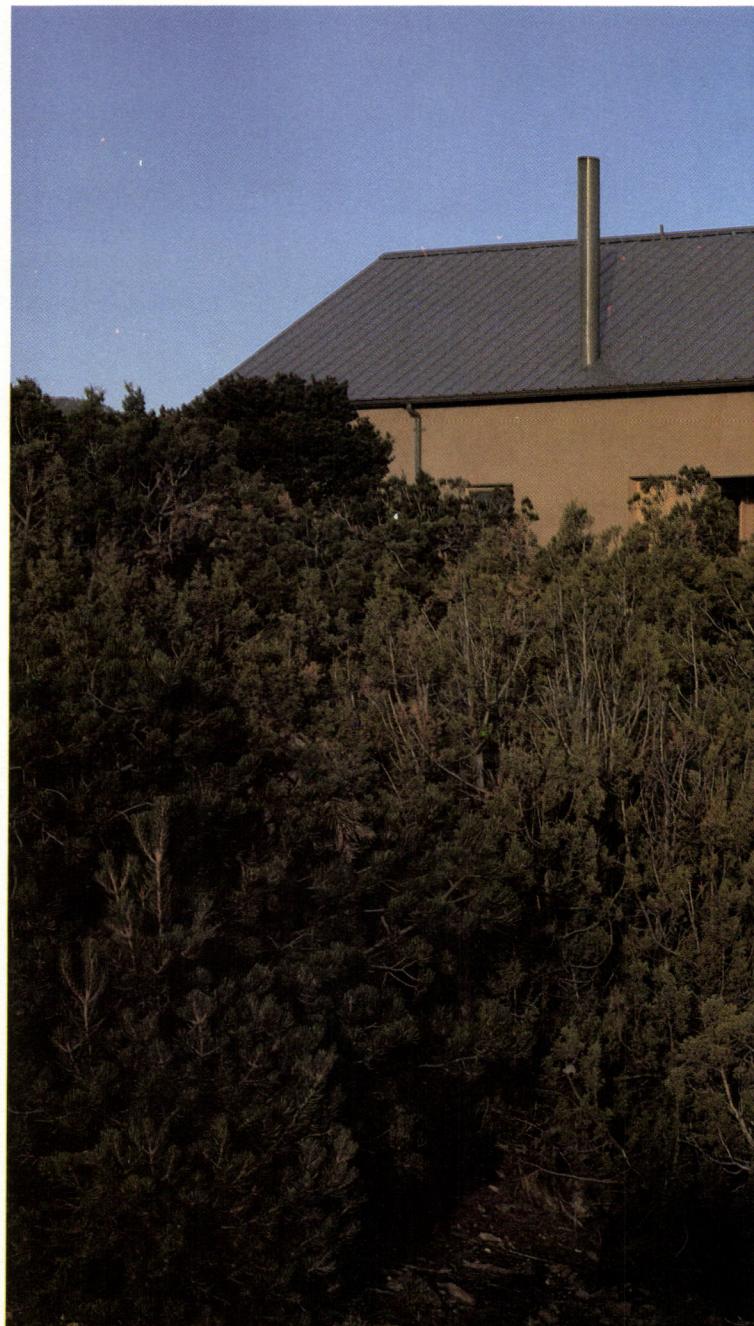
Calling Antoine Predock, FAIA, a regional architect is like calling Woody Allen a regional filmmaker. Predock uses regional idioms as the stock to which he adds a variety of surprising ingredients, ranging from space technology to Hollywood B movies and the low rider culture of northern New Mexico. Thoroughly grounded in the vernacular building traditions of the Southwest, he nevertheless constantly inverts those traditions in the cause of a richer, denser architecture.

This house in Tesuque, N.M., just north of Santa Fe, offers a case in point. At first glance it looks like one more New Mexico adobe—low and massive, with portals, wood beams, small square windows, even a zaguán or entrance gate for the motor court.

But subsequent readings show inventive departures from the familiar pueblo prototypes. The house is long and narrow, without the traditional interior courtyard. One roof is pitched and crowned with a round metal smokestack instead of a massive masonry chimney. The small deep windows are combined with large expanses of glass that make the interiors seem open and airy. This is clearly a pueblo-style house that has been artfully abstracted and extruded.

"The clients had a bias toward Southwestern imagery," Predock explains, "but they also understood that I would not do a literal take on that imagery. That's why they came to me. They allowed me to explode the traditional parti."

The Tesuque house is an emphatic expression of its site, a



long open ridge offering dramatic views of Los Alamos and the Sangre de Cristo mountains. The house began as a thin black line in Predock's sketchbook simulating the ridge. Such two-dimensional sketches rarely hold up spatially, but Predock trusted this one, had it blown up, and never relinquished it. The line became the undulating northern wall of the house, snaking along the ridge and inflected periodically to take advantage of the spectacular views. The preliminary plan called for a lap pool at one end of the house and a stable and guest quarters at the other, which would have made the serpentine plan even more pronounced.

The approach, from the north, offers few hints of the drama to come. The house appears solid and anchored, just what one would expect of an adobe in this part of the country. From the circular entry court, a remnant of the hacienda courtyard, one glimpses the distant mountains, only to be denied that view immediately by the sheltered and darkly shadowed entry. Predock giveth and Predock taketh away. (He rarely flaunts his entrances, preferring to tuck them in or conceal them to intensify the surprises to follow.)

The first surprise occurs just across the threshold, as this seemingly dense and solid house suddenly offers nearly unobstructed views of the valley and the distant mountains. There are large

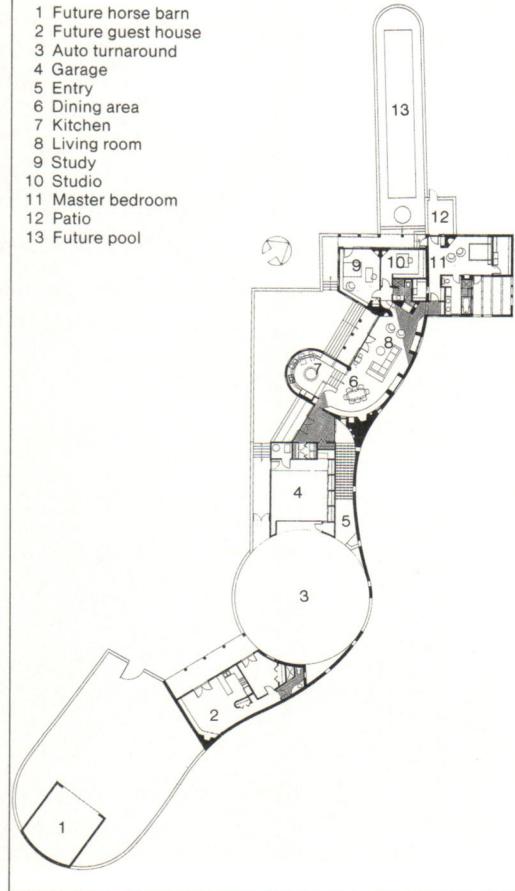
Above, views from the south (left) and west. Right, entrance is through narrow passage to the right of garage door.





Left, mountain ridges line the distant west as seen from the living room windows. Below left, another view of the living room with beehive fireplace and exposed beams. The plan, below, includes an unbuilt horse barn at lower left, a guest house—also unbuilt—just south of auto turnaround, and an unexecuted lap pool, the long element with the rounded end at the top of the plan. Right, the shaded entrance passage next to the garage looking toward the auto turnaround.

- 1 Future horse barn
- 2 Future guest house
- 3 Auto turnaround
- 4 Garage
- 5 Entry
- 6 Dining area
- 7 Kitchen
- 8 Living room
- 9 Study
- 10 Studio
- 11 Master bedroom
- 12 Patio
- 13 Future pool



windows and a patio beyond. From terra firma to the edge of a precipice in four steps. This is clearly a house of views as well as walls, in which perspectives are all carefully controlled.

The original clients (the house recently changed hands) were a film producer and a weaver who both wanted to work at home. Consequently the house is zoned for gathering, working, and sleeping, all accomplished in an understated way that makes the progression from public to private spaces seem easy and unforced.

The entry hall leads to a large living and dining room, with a kitchen off to one side. This is the social center of the house and contains the most overt references to traditional New Mexico architecture. The living/dining room is a large, gently arcing space with beamed ceilings and brick floors, and *nichos* and *bancos* along the north wall. A beehive fireplace anchors one corner. The thick outer wall, made of concrete block and cement plaster, creates a reassuring feeling of protection and enclosure.

The kitchen is a half-drum that recalls the ceremonial kivas of the neighboring Pueblo Indians. A circular skylight and heavy beamed ceiling only intensify the impression that this is an ancient ceremonial space being adapted to contemporary uses. It is a place to cook, eat, talk, or merely soak up the views.

This expansive space contracts where it joins the library and work area and the master bedroom suite. The former rooms have 18-foot ceilings, formed by a sloping metal roof that Predock had to hector and cajole the local design review committee into

approving, even though such roofs are ubiquitous in Tesuque. By manipulating ceiling heights and wall configurations—causing the plan to breathe in and out, so to speak—Predock makes a relatively modest house (3,300 square feet) seem far larger. It's impossible to read it at a glance, or to anticipate what will happen next. Just when you think you know what the architect is up to, he's up to something slightly different.

The master bedroom suite, understandably, is the most private and secluded section of the house, complete with its own walled garden and patios. It concludes the passage from the public to the private domains within the house.

This house is less frankly theatrical than another Tesuque house by Predock that tumbles picturesquely down a hillside like a miniature Italian town (see July '87, page 34). Nor is it suffused with deep mythic murmurings like the Fuller house in Scottsdale, Ariz. (see May '87, page 128). Terms such as "appropriate" and "fitting" are so abused around Santa Fe, being applied with equal fervor to simple adobe farmhouses and gigantic resort hotels with vigas through all four sides, that one hesitates to use them to describe this house. Nevertheless, it is very much of its place while clearly transcending local and regional conventions. It is rich in subtle tensions—between sun and shadow, formality and informality, openness and enclosure. In following a well-trod path, Predock has introduced enough turnings and diversions to make the trip seem fresh and provocative. □





Photographs © Timothy Hursley/The Arkansas Office

Solid Geometry and Deconstructivism

Beach house in Florida by and for James Mount, AIA.
By Stevens Anderson

When James Mount, AIA, of Atlanta decided to build a house at Santa Rosa Beach, Fla., his intention was to create an informal "beach cottage" with a feeling of openness and comfort. Located on a narrow strip of land between the Gulf of Mexico and Choctawhatchee Bay, the house is in an area of great natural beauty that conceals a harsher reality. There is no protection here from the blistering sun, high winds, corrosive salt, and unpredictable tides. Cottages along this stretch of unprotected beach are consequently inexpensive, simple, weathered, wood-frame constructions raised on pilings and requiring minimum maintenance.

Confronted by a repetitious and dull built environment, Mount decided to design his house in context with the natural environment. He selected a variety of simple geometric forms whose clean lines relate to the landscape of sea, sand, and sky. He also devised an elaborate program of paint, based on the white sand and its subtle changes of color from a rosy pink in the early morning to a yellow pink at dusk. Ten shades of paint create a distinct facade freed from the surrounding built environment. Unfortunately, however, Mount could not protect his house from the effects of the natural environment. After two years, its painted surfaces already show signs of deterioration.

The house, sited in the thick undergrowth of a scrub grove, has a direct visual axis from the parking area to the entrance on the north, inland elevation. However, direct access is blocked by an enclosed ramp positioned in front of the house. Like a playground sliding board in a large sandbox, the ramp establishes a circumscribed circulation pattern that passes through or around

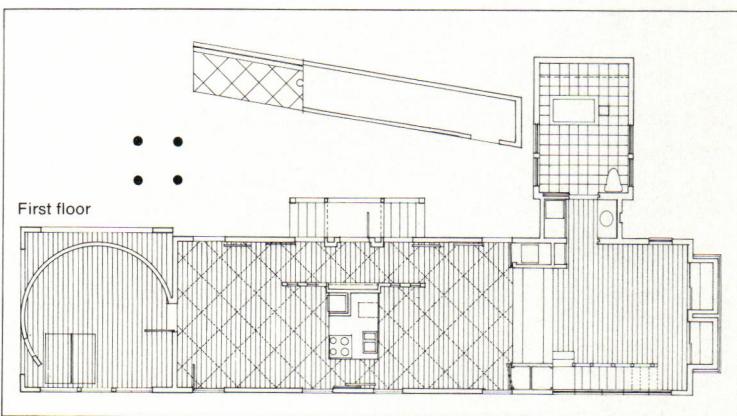
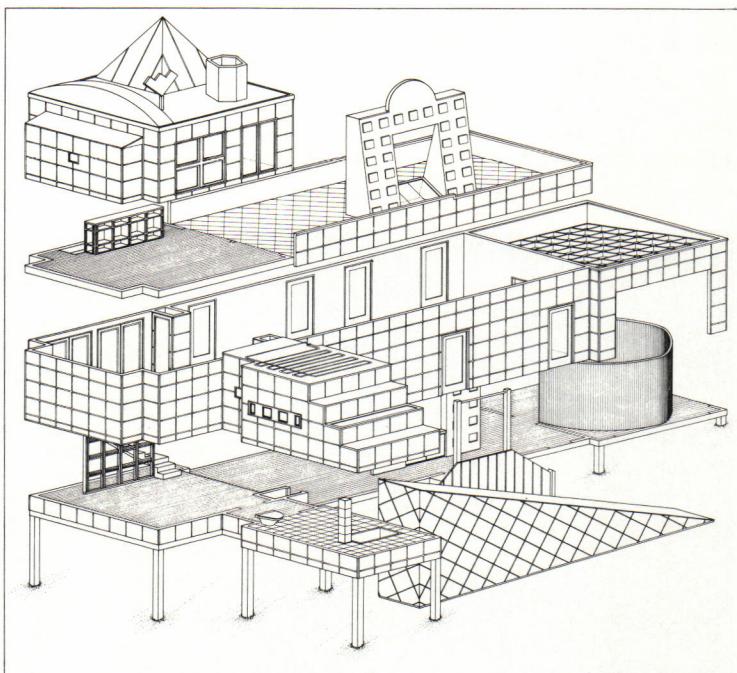
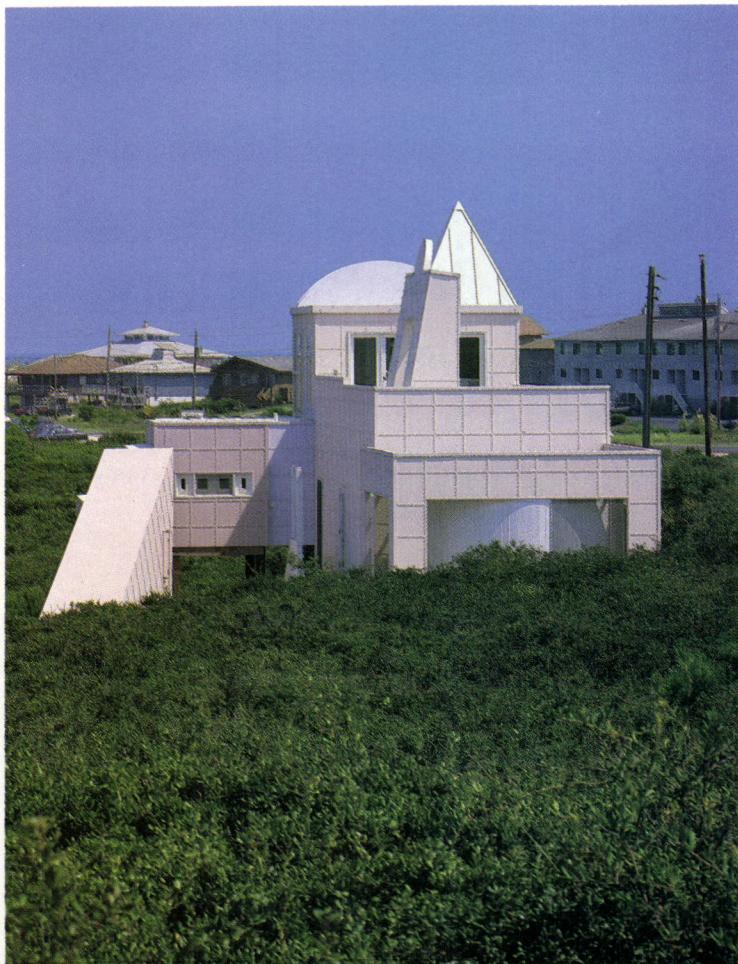
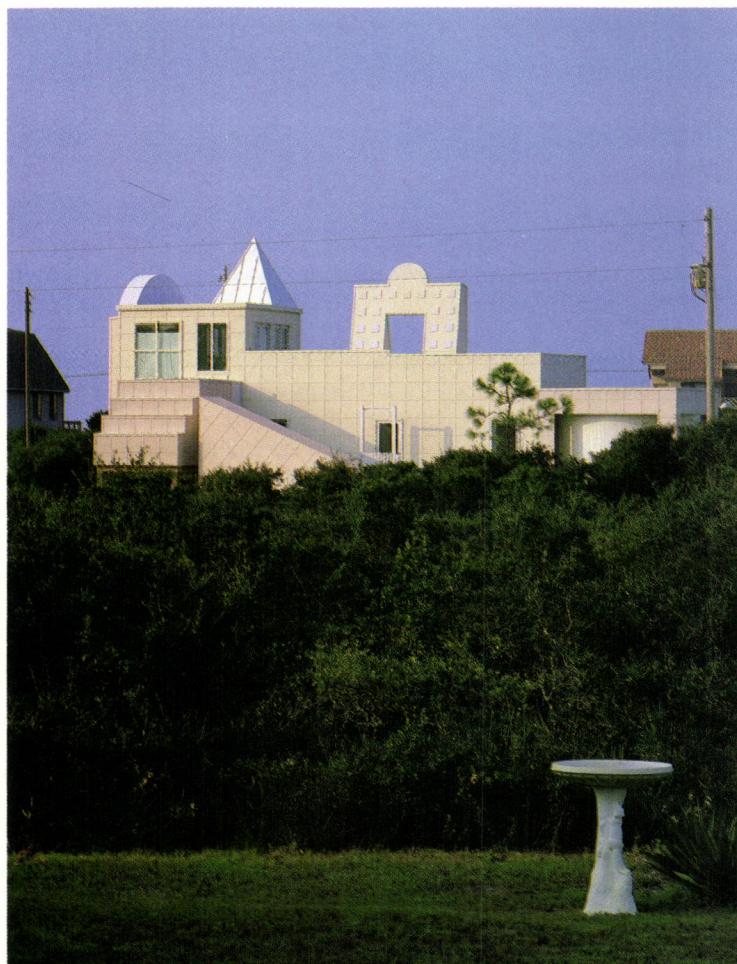
a series of layered partitions. The ramp also conceals storage and pumps for the well while providing an impromptu skateboard run for Mount's teenage son.

The plan of the house is based on a series of 16-foot squares placed along an east-west axis. Three overlapping squares form the center of the composition and comprise the dining, kitchen, and living areas. Two bedrooms, one stacked on top of the other, are at the eastern end of the sequence with an interior staircase designated on the exterior by a rooftop pyramid. A screened porch that concludes the western end of the sequence is composed of an open square inscribing a corrugated metal cylinder. The general lack of privacy is considered appropriate by Mount, who favors a communal life style at the beach. The narrow spaces take advantage of cross ventilation from the prevailing south winds off the gulf and allow abundant natural light into the interior, designed by Mount's wife, Sharon, an interior designer with Heery in Atlanta.

Mount's materials, reminiscent of Frank Gehry and other deconstructivists, are mainly plywood faced in kraft paper and galvanized metal for the exterior—perhaps not the most appropriate choice for the climate. The plywood, mounted on a 2x4 wood stud frame, is further supported by a series of applied lattice strips. The roof and deck forms are covered with galvanized metal, the upper deck surface with single-ply roofing.

In a region heretofore architecturally monotonous and undistinguished, where identifying individual houses has long been a problem, Mount and his house have achieved a measure of local notoriety. As said by two women who live up the hill from Mount, "Well, at least now we can tell people how to find our house by telling them to simply turn off at the first pink house with a pyramid on its roof." □

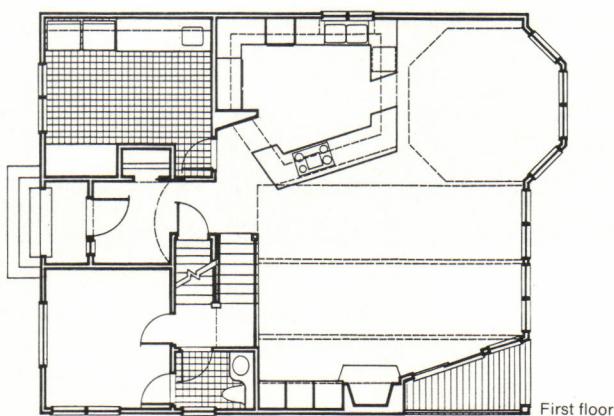
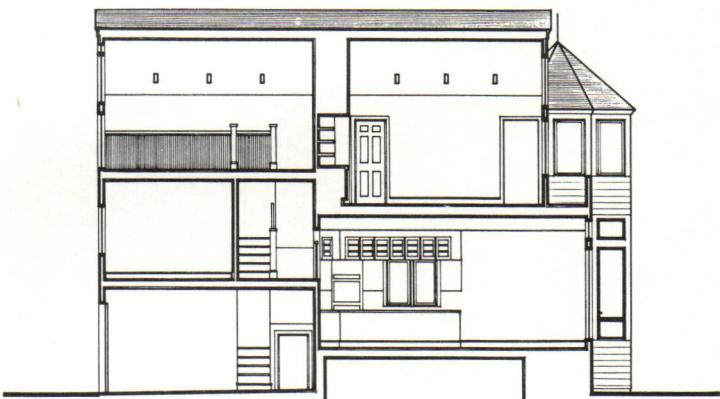
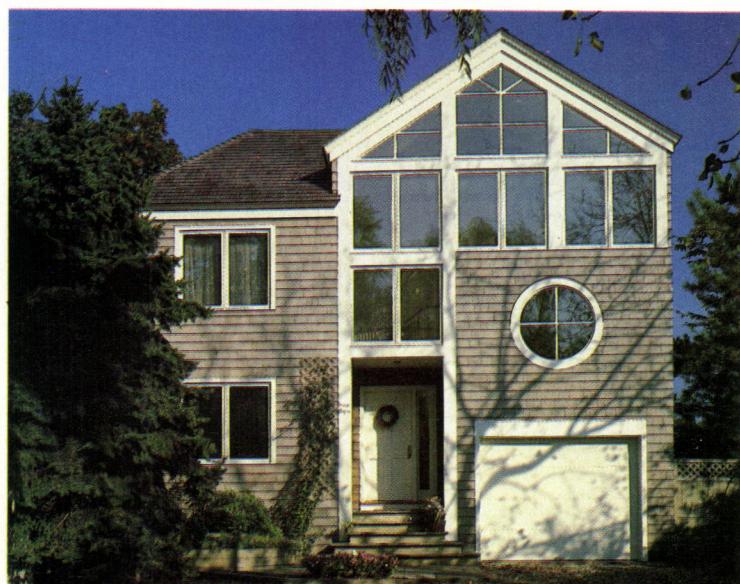
Stevens Anderson is an architectural writer and historian living in Washington, DC.



The roof form over the entrance, reminiscent of a stage set for an Egyptian pylon, conceals a skylight that provides northern light to the living area below. This exterior form rises out of the center of the living area, where its base functions as an entrance screen and kitchen partition.

Spacious House On a Tiny Site

In Westport, Conn., Mark P. Finlay Architects.
By Michael J. Crosbie

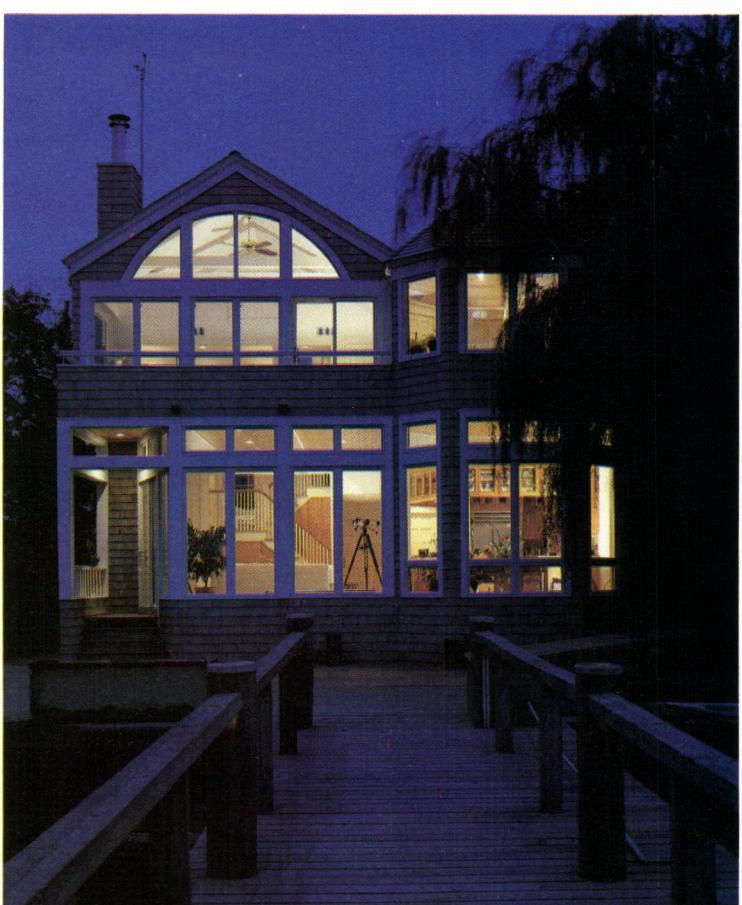


On a waterfront site in Westport, Conn., this 2,500-square-foot house seems to defy the bounds of its walls. Designed by Mark P. Finlay Architects of Fairfield, Conn., the house was built on the footprint of a 1950s A-frame that once occupied the narrow, 50x85-foot site. The A-frame was demolished, leaving Finlay a 32x39-foot foundation on which to design a house for a client who wanted generous living spaces that included a kitchen, three bedrooms (each with its own bath), a studio space, and a one-car garage—all within a height limit of 30 feet.

The plan is divided on its east-west dimension into two nearly equal parts, the larger portion being toward the north on the waterfront. On the south side, Finlay sandwiched two bedrooms, the study, the garage, and a utility room into three levels. The water side is divided into two levels—a master bedroom suite over the main living areas. This arrangement gives the most important spaces appropriately ample volumes and nearly uninterrupted views of the water.

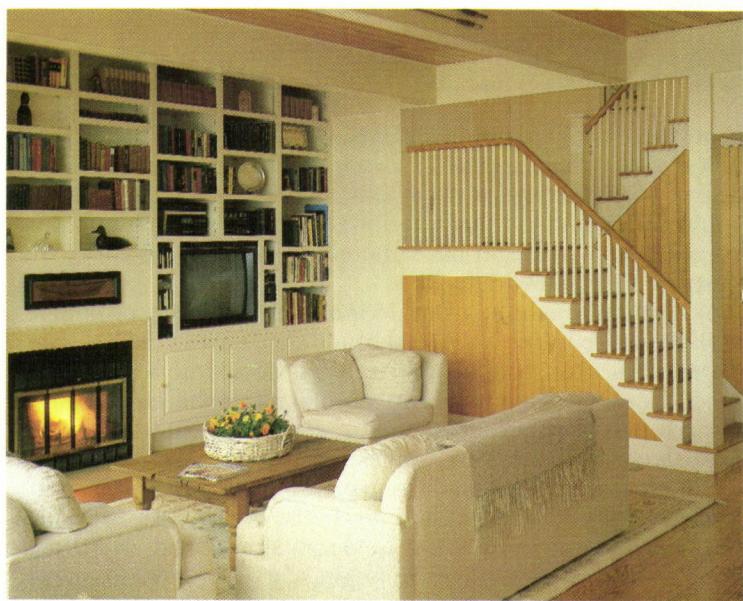
The entry side is buttoned up at ground level, but opens its collar as the house grows to its peak. Behind the upper windows is a volume devoted to the studio, which acts as a solar heat collector. The house's north/south split is laced together with a staircase that has three landings, each devoted to a single bedroom. A curved landing looms out above your head as you step into the foyer, where you can look straight up to the roof's peak.

As you proceed beneath the landing into a tight little hallway, you're sufficiently compressed to be doubly impressed by the sunny living spaces that seem to extend beyond a glass wall. The clients are gourmet cooks, so the kitchen is part of the living area. The dining room pokes out in an octagonal bay toward the water, while the living room is focused inward on the fireplace. The wood throughout the interior is light oak and pine or painted white, underscoring the effort to make the most out of little space and in keeping with the waterfront locale. □

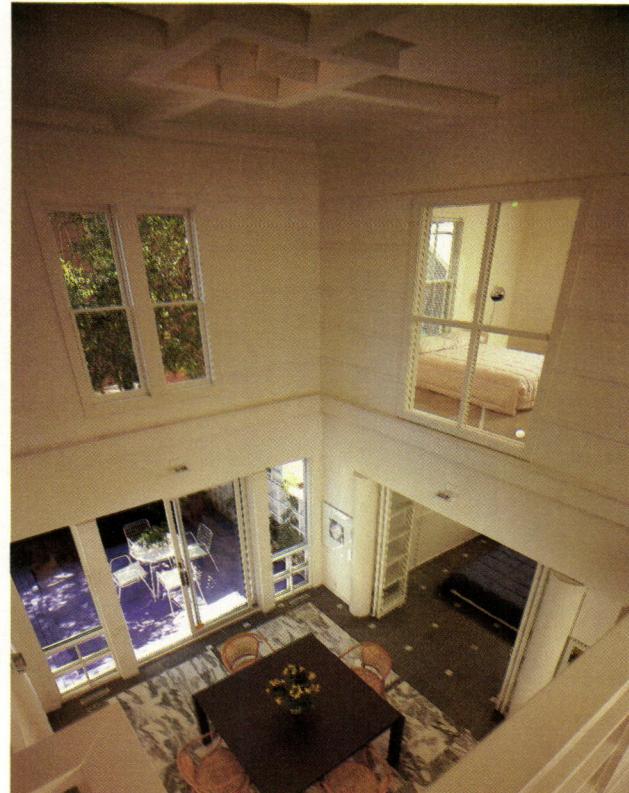
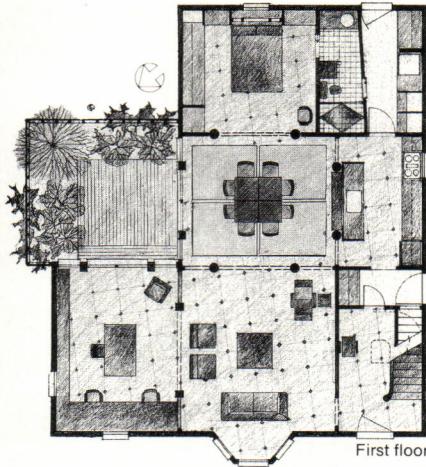




Photographs © Melanie West



Facing page: top, house's front facade as it faces motor court; below, its obverse side opens up to views of the water. Above, counterclockwise from top: view of main living spaces as they extend along house's water side; living room nook, with fireplace, bookcases, and stair to other three levels; master bedroom with arched windows and bay views.



Modest Remodeling Full of Fresh Ideas

*In Cambridge, Mass., by and for
Don Hisaka, FAIA. By Robert Campbell, AIA*

Don Hisaka's house is the kind of house an architect could design only for himself. It is filled with experiment and whimsy and ideas that are fresh and vigorous but not meant to be taken too seriously.

Hisaka himself likes to undercut pretension by pointing out how cheap everything in the house is. For instance, the handsomely finished dining room table, softly glowing with what seems to be burnished lacquer, is actually finished with Porsche auto body paint. Hisaka owns a Porsche and loves its metallic luster. The six round columns near the dining room's corners are PVC sewer pipes. What appear (from any distance) to be elaborately crafted, probably metal railings and capitals prove, on inspection, to be stock pine or fir pieces nailed together.

"You don't need good materials or workmanship as long as you paint everything white," the architect explains airily.

There is a special kind of pleasure in realizing that a column is also a plastic sewer pipe—the same kind of pleasure we get from realizing that the bull's horns in a Picasso sculpture are an ordinary bicycle handlebar. We delight in the hidden pun, the deft transformation.

But there's a paradox here: the flippancy that Hisaka claims for himself is at odds with the immaculate perfection with which he maintains the house. It's at odds, too, with the bold paintings on the walls, some by famous names, and with the inlaid slate and marble on the floor.

A larger paradox is the contrast between the outside of the house and the inside. The outside is an ordinary, unpretentious

clapboard box like thousands in New England. Its only distinction is that it stands a block or two from Harvard Square in Cambridge, Mass. Because of neighborhood preservation rules, Hisaka couldn't have altered this exterior very much. He chose to do even less than he might have, merely changing the color of the shutters from black to beige.

Walking through the front door of this extremely ordinary-looking house is like walking through C.S. Lewis's closet into Narnia. You pass from a familiar, banal world into a magical space that seems impossibly larger than its clapboard container, a space that is white, silent, and mysteriously beautiful. Space flows freely in all directions. Diaphanous, white, see-through walls, like frames or screens, don't so much define the rooms as frame interior views. Moving around inside the house, you feel some of the exhilaration of walking outdoors after a fresh snow. The vivid color accents are like the bright scarves of a winter scene.

There's a final, more purely architectural paradox that informs the interior. Hisaka has made a formal, symmetrical, classical floor plan that falls somewhere between a nine-square plan and a Greek cross, with the dining-room table in a double-height atrium, like an altar, at the center. But then, instead of reinforcing the classicism with well-defined rooms or historicist detail, he has instead shotgun-married it with modernism.

Abstraction, geometry, floating planes, spatial layering, collage—all the basic devices of the modernist esthetic are present. Abstraction is in the whiteness and the reduction of details to diagrams of themselves. Geometry is in the grid of the marble floor, cranked



Facing page: the street facade reveals no clue to interior changes; the dining room table, central in the plan, marks the double-height atrium shown in two interior photos. Above, the living room with adjoining studio and dining room.

at a meaningless angle to the walls and thus challenging the coherence of the plan. The planes of the walls, especially the four floating facades of the atrium above the dining room, layer the space and make it seem deep and beckoning. Collage is in the overlay of vivid figural paintings against the chaste gridded walls, or in the thin marble slabs on the wood stair treads.

Not everyone could live happily in this house, which is occupied by Hisaka and his wife, Michiko, a weaver. The openness doesn't lend itself to privacy; the master bedroom, for example, is on the ground floor and opens directly off the dining room through folding glass French doors. But that isn't an issue for the present occupants.

There are long views everywhere, views that tend to terminate in bright color. A studio for Michiko Hisaka opens off the living room, its far wall a display of vivid prints of Marilyn Monroe. A tiny outdoor terrace, off one side of the dining room, boasts an unforgettable electric-blue floor that plays nicely against the salmon-pink house next door, whose wall bounds the terrace and terminates another view. Living room, dining room, and master bedroom form another long axis that ends with the sunburst window against a background of green foliage.

Perhaps the most memorable part of the Hisaka house is the

upper part of the dining atrium. Here four white facades face one another across the space. All are different, yet all are variations on the same theme—that of a single window set in a wall. In two facades the “windows” are merely suggested by frames, of subtly different proportions, set in open railings. The third facade is solid, rusticated by moldings, and pierced by a real window—but an interior one—which is once again differently proportioned and opens into a guest bedroom. In the fourth facade, also rusticated, is the actual exterior window of the original Cambridge house, which has yet another shape. There is relaxed and elegant play here with the contrasts of new and old, open and closed, inside and outside. And despite the variation, the four facades are in harmony.

Hisaka moved to Cambridge from Cleveland a few years ago, abandoning, at age 55, an established practice. He says he was bored with the work he was doing and needed a change. Starting from nothing except his own workaholism, he quickly built an equally thriving practice in Cambridge. Like many architects of his generation, he had undergone a major soul-searching upon the arrival of postmodernism. Though he doesn't say so, it seems clear that the reassessment gave him a new, elated sense that architecture could be fun. “The last decade forced us to look at architecture,” he says. “Graves and Moore, they blew it all wide open.”

Hisaka's house sums up much of his personal history. It evinces his current interest in balancing modernism and classicism and displays his delight in the resulting play of paradox. □



Firmly Rooted in New England Tradition

Inn-by-the-Sea in Maine, Teas, Feely & Hingston.

By Robert Campbell, AIA

Can there really be such a thing as "world-class croquet?" If there isn't it's a shame, because a place has carefully been provided for it, along with almost every other kind of physical pleasure, at the deceptively modest-looking Inn-by-the-Sea at Cape Elizabeth, Me.

The inn replaces a rambling Victorian firetrap that long occupied the site. The old inn, known as Crescent Beach Inn, was acquired a few years ago by Pritham Singh, Maine's legendary developer, who asked Portland architect Teas, Feely & Hingston to fix it up. Studies soon proved the Crescent to be beyond repair, and Singh opted to replace it. Mindful of the highly developed environmentalist sensibilities in this wealthy resort area, the architect wisely chose to bone up on the shingle style and to produce something akin to the great shingled houses and inns that once dotted the Maine coast and lakefronts.

The result is an engaging success. The inn ranges itself loosely along a low bluff, looking south across the salt marshes and sand of Crescent Beach State Park toward a bay filled with rocks and sails and fishing boats. There is one big building, the lodge, that bends an elbow in plan to enclose a lawn and pool entrance. Next to the lodge is a cluster called the cottages. The language here is almost as contextual as the shingles; half the great old New England resort hotels consisted of a "lodge" and "cottages."

The lodge is the strength of the design. It has a sweep and volume and serenity that truly evoke the shingle style. Great gray masses of roof, flat or curving, heap up around the entrance,

which is located at one end of the lodge and is further marked by a flagpole and porches and boldly gridded gables in a satisfying profusion of architecture. From this pile of accents at the entry, the rest of the lodge moves off horizontally in rhythmic, wavelike bays as it curls to enclose the lawn.

It all looks simple, but it's not. For one thing, a lot of money has been spent. Pritham Singh is a native of Maine who originally was named Paul LaBombard but later became a Sikh. After a hippie phase he went into development, beginning casually with small renovations in and around a Portland that was about to boom. He quickly made millions and moved on to larger things, including the purchase of the former naval base in Key West, Fla., now being converted to resort uses. Singh's wealth shows at Inn-by-the-Sea in the marble lobby floors and original Audubon and Winslow Homer prints on the walls.

The architecture is equally sophisticated. Singh made it a requirement that all rooms have through ventilation and an ocean view. The architect responded with a skip-stop section in which a duplex sits on a flat, both entered off the same single-loaded corridor at second-floor level. The duplex, Corbu-like, boasts a mezzanine overlooking a double-height living room. Every unit

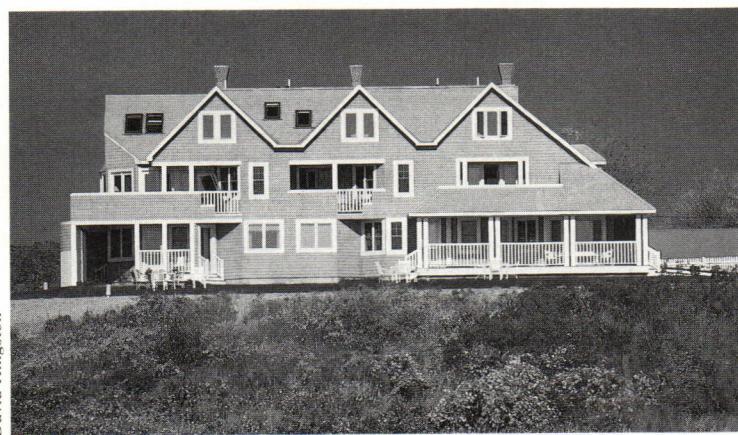
Above, the inn lies on a bluff overlooking marshes and sands of Crescent Beach State Park at Cape Elizabeth, Me. Fountain, at bottom center of photo above, is prominent in photo at top of facing page. Right, the lodge as croquet lawn background.



© Jeffrey Stevenson



© Jeffrey Stevenson



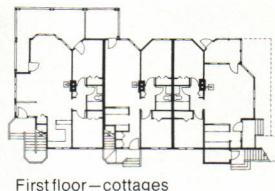
has an ocean-facing porch or deck; the porches of the ground-floor flats line up in a continuous arcade that gives the lodge a deeply shadowed base. On the upper floors, above the arcade, the white-framed windows are ingeniously grouped and varied to achieve a semipublic scale, but never to the point of seeming whimsical.

The cottages are less successful. Lacking the arcade base, they float on the lawn like Hovercraft, and you expect them to move. The old shingle-style mansion of the New England coast usually sat on a basement made of rough natural rocks that seemed to have erupted spontaneously from the earth, so that the house itself, with its many porches and roof shapes, looked rather like a whole village perched on a seaside cliff. For the sake of access for the disabled, as well as other reasons, you can't start with rocks anymore, and the cottages at Inn-by-the-Sea look rootless as a result. They also stagger in plan and have perhaps too many inventive motifs in the facades. Still, they're pleasant and festive and help enclose the great lawn overlooking the beach.

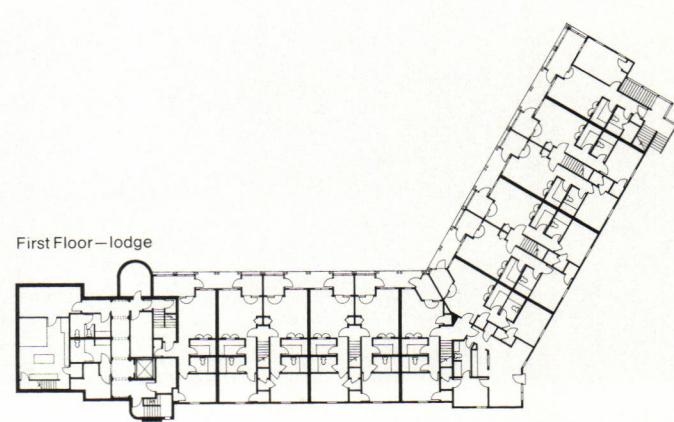
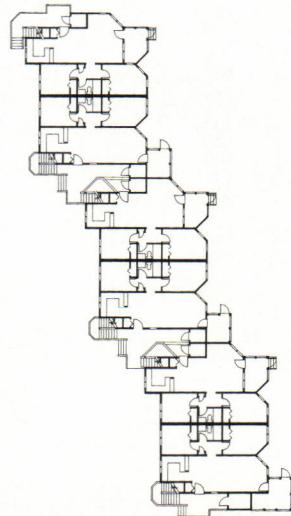
In the landscape are a gazebo, a tennis court, a pool, a rose-trellised tea garden, several sculptures, and the aforementioned world-class croquet lawn. A wood-decked walkway carries you, inches above the marsh, out to the beach. The inn's 43 rooms are really suites of one or two bedrooms, each with a bar, a video player, and a kitchen. The inn also has a restaurant, a library, and meeting rooms. In winter it mostly plays host to conferences; in summer it becomes a resort.

This is a superb new seaside hotel, as fresh and new as it is comfortable with its setting and its past. □

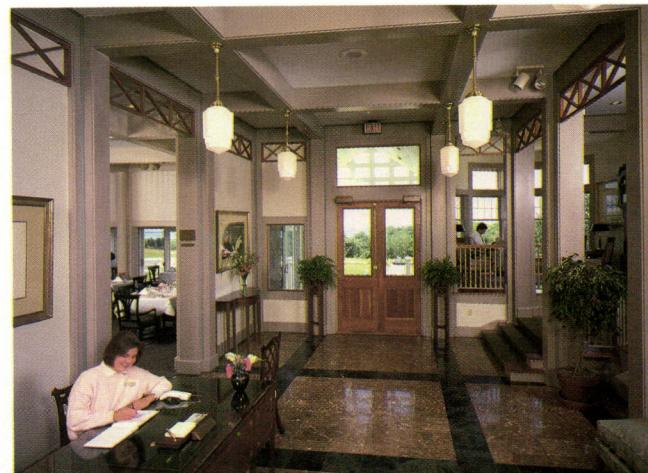
Top, the end of the lodge and three of the four cottage buildings from the pool. Above, the end of the largest cottage building from the marsh. Plans showing room configurations don't reflect site relationships. Right, the lobby and a typical suite in the lodge. Facing page, the view from the lodge front door.



First floor—cottages



First Floor—lodge



© Jeffrey Stevenson



© Jeffrey Stevenson



Very Large Hotel Respectful to Nature And Its Neighbors

*The Inn at Spanish Bay,
Bull Volkmann Stockwell.
By Donald Canty, Hon. AIA*

Without being an unduly chauvinistic Californian, one could argue that the 17-Mile Drive along Pebble Beach near Monterey is the most scenic stretch of road its length in the country. The water is crystal clear and varies in hue from emerald to turquoise. Behind the beach are stands of pine and cypress, the latter often bent and sculpted by the wind.

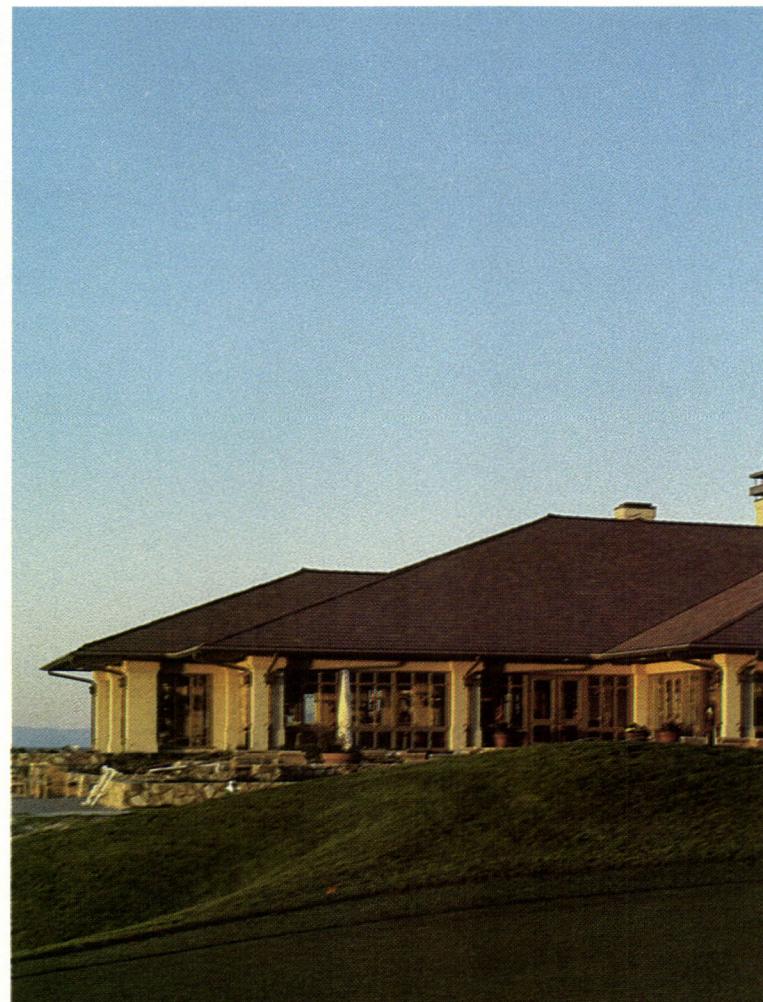
This is also a very wealthy stretch of road, the site of seaside mansions of the rich and famous, past and present. The only pseudo-commercial enterprise along the drive is venerable Del Monte Lodge, which seems as much of the landscape as the cypress. There is a seemingly endless string of golf courses along the way.

It is hard to imagine a more demanding place in which to build a large new building, in terms of both nature and neighbors. The Pebble Beach Co., owner of the lodge, wanted to do just that—build a 270-room luxury hotel and a new golf course at Spanish Bay, near the north terminus of the drive. To design it the company called on San Francisco architect Bull Volkmann Stockwell, which faced not only the above-mentioned pressures but a 35-foot height limit as well.

The resulting building seems very comfortable in its surroundings. It winds along the trees and seems to hug the dunes around it. It has something of the character of an elongated mansion of the quasi-Mediterranean kind that dot the drive. It is not meek—witness the chesty elevation above right—but it is unobtrusive for its size.

It is also handsomely composed and rich in regional character. Sweeping hip roofs and wide overhangs recall bay region domestic architecture; adobelike walls and hefty arcades are reminiscent of the California missions, especially at the entry.

The inn was built along a natural ridge, and the architect devised a section that made good use of it. Typically, on the water side the building rises four stories, the fourth being composed of dormer rooms cut into the roofs. On the entry side it is two stories. The top two photos on the right are views from the water side, where, viewed from a distance, the inn reads as a series of pavilions and towers in the woods. The bottom photo



is of the entry side, from which the inn seems a modest if extensive structure nestled in the dunes and trees. A price of the inn's unobtrusiveness is a very long building with some seemingly endless corridors. The journey down them is eased by stunning views, and there are furnished alcoves at each turn for respite.

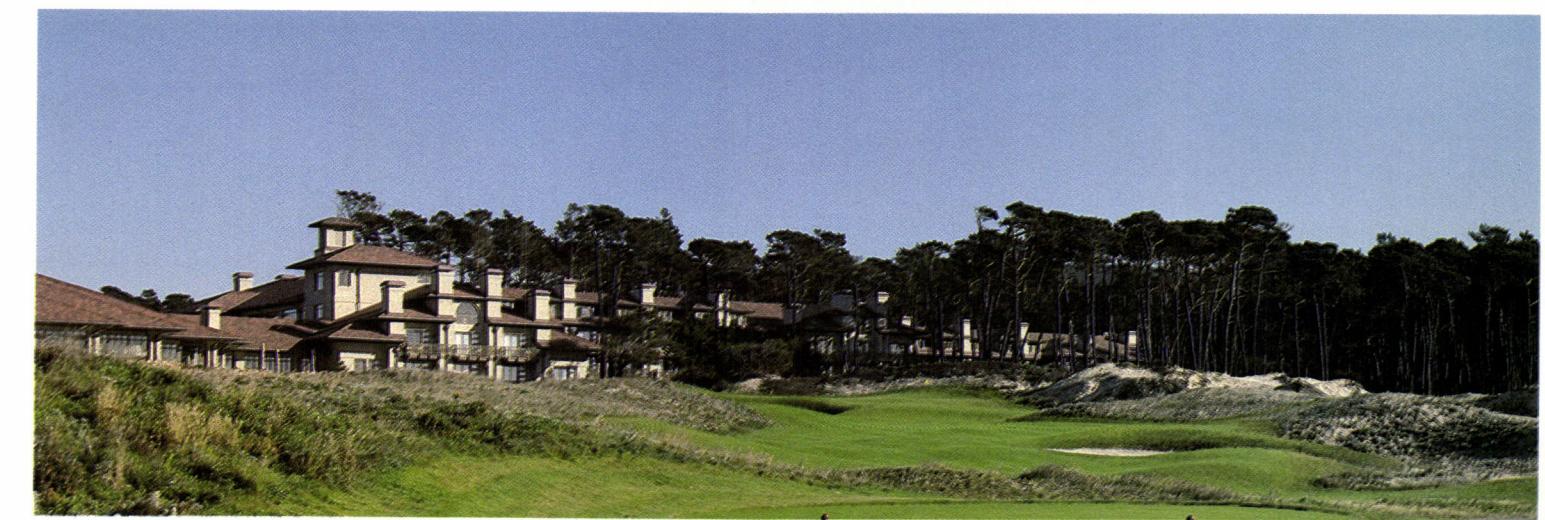
Guest rooms are 30 percent larger than the standard for luxury hotels. Each has a fireplace and most have either decks or terraces. Public spaces, however, are uneven in design quality, reflecting the fact that a variety of interior designers worked on the project during its gestation. There are some fine, warm spaces and some exquisite detailing, but there are also places where sumptuousness becomes overwhelming.

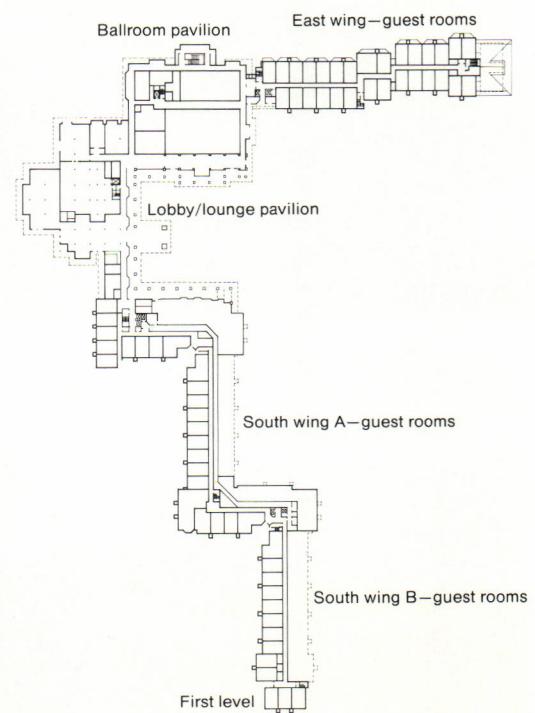
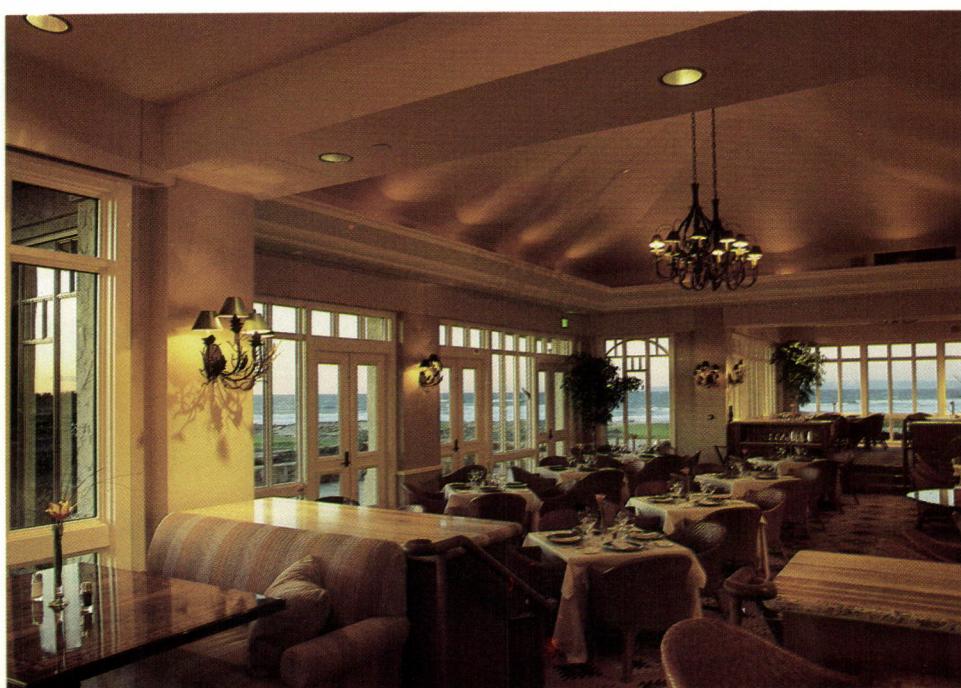
The dunes that surround the hotel were themselves designed. The site had been a sand quarry and was badly scarred. Half a million cubic yards of sand were brought in to restore the dunes, and they were "sculpted" as part of the design of the golf course by Robert Trent Jones Jr., Tom Watson, and Sandy Tatume. The gently sloping roofs of the inn were meant to echo the dune forms, according to Henrik Bull, FAIA.

"Architects have a responsibility to build with rather than on the land," said Bull in a recent magazine article. "Once architects and vernacular builders designed buildings to be integral to the landscape. In the last three decades architecture has been characterized by buildings that do not attempt to relate to each other or their surroundings."

The result, he noted, has been a proliferation of regulations and controls over building on sensitive sites. Bull continued, "The intent of the architect to preserve and enhance our natural environment can achieve as much or more than reams of design and construction regulations." With the Inn at Spanish Bay he has proved his point.

Top, on the tall, water-facing side, chimneys, broken roof planes, dormer rooms with fan windows, and balconies make an arresting composition that is repeated as the building winds through the trees. As it turns the corner to the entry side, the building gets more domestic and very horizontal.



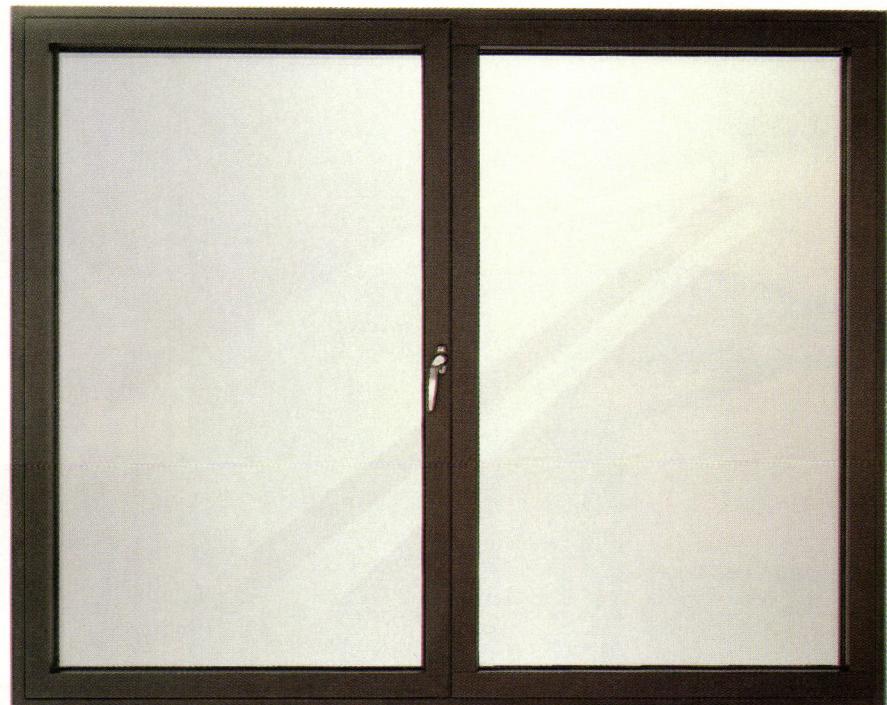


Top left, the entry, both imposing and inviting. Tower beside it effectively relieves what might have been too much horizontality on this side. The height limit was made a mean rather than an absolute. The tower rises to 65 feet, but other elements of the building stop at 29. Left, one of the two major restaurants and a bar. Right, a close-up of the corner at the intersection in center of plan. □

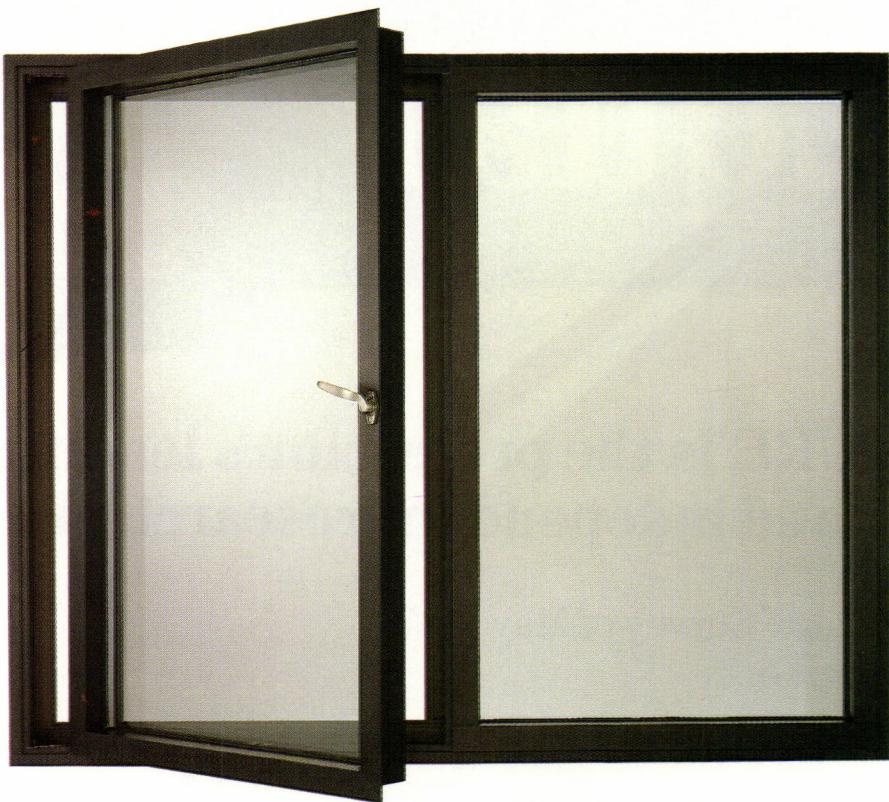
Photographs © Jane Lidz



EQUAL SIGHTLINES.



OPEN OPPORTUNITIES.



The EFCO Series 890 Equa-Vu is a high performance, thermally broken window that can be stacked horizontally or vertically with equal sightlines. Available in three configurations. Projected, top-hinged in-swinging, and casement. All Series 890 windows have operating vents that are indistinguishable from fixed lites. Ideally suited for both standard and custom applications.

For performance specifications regarding the Equa-Vu and other EFCO windows, refer to Sweet's (Section 08500/EFB Buyline 3117). Or call us toll free.

1-800-221-4169

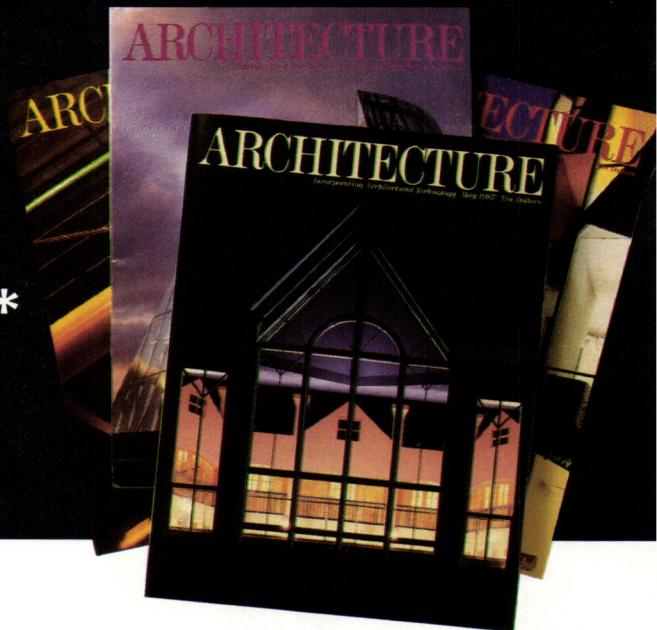


More Windows, More Ways, Than Anyone.™

EFCO Corporation, P.O. Box 609, Monett, Missouri 65708-0609 1-417-235-3193

Circle 91 on information card

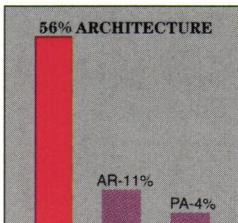
Architects Agree there's no Equal*



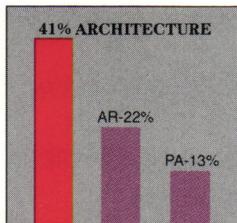
ARCHITECTURE is the profession's leading publication...and independent research proves it!*

The independent Readex® Survey of May 1987 shows Architecture is the...

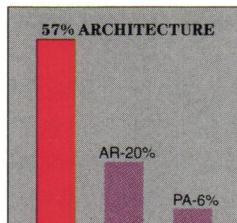
PREFERENCE...
of a vast majority of architects for useful technical information



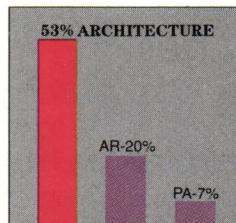
LEADER...
for useful design information



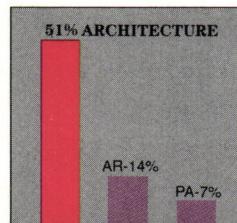
CHOICE...
of a majority of architects for useful professional practice information



MOST RESPECTED...
and valued magazine in the industry



MOST HELPFUL...
magazine to a majority of architects in their work



And that's exciting!

ARCHITECTURE continues to build excitement by providing editorial coverage of both the design and the technological aspects of architecture to a degree unmatched by any other magazine in the architectural field.

We're Building Excitement



The rust is up to you.

If steel is in the "specs", you can expect rust. Rust your client's maintenance crews are going to have to deal with. And, that can get costly, over time.

For many structures, however, you can eliminate that rust problem, and enhance the structures' beauty significantly, by using EKKI hardwood from HWH Corporation.

EKKI (Bongossi/Azobe) hardwood offers extraordinary strength and durability, you'd never expect from wood. And for all practical purposes, EKKI requires no maintenance. It resists decay, insect attack, fire and even vandalism.

EKKI does not require chemical treatment of any sort. No creosote. No pen-

tachlorophenol. No CCA. It presents no hazards to either the crews erecting the structure, or to the environment.

EKKI maritime structures have been in place for 30 years — or more.

HWH Corporation is an affiliate of The GWZ Group, The Netherlands, which has 90 years of experience working with this wonderful wood. We can design, engineer or fabricate your hardwood structure. We can and we will.

Even if you are just ideating, call Dave Harkins, our Director of Marketing, at 215-661-2000. Start a dialogue with us. It could lead to some wonderful things! Trust us. It will.

Please send literature on:

<input type="checkbox"/> EKKI Hardwood	<input type="checkbox"/> Landscape Applications
<input type="checkbox"/> Bridges	<input type="checkbox"/> Marine Construction
<input type="checkbox"/> Design & Material Services	<input type="checkbox"/> Other Applications

Name

Title

Company

Address

Phone

Please call ASAP to discuss an immediate requirement.

EKKI does what you never thought wood could!



P.O. Box 549 ■ 204 Progress Drive
Montgomeryville, PA 18936

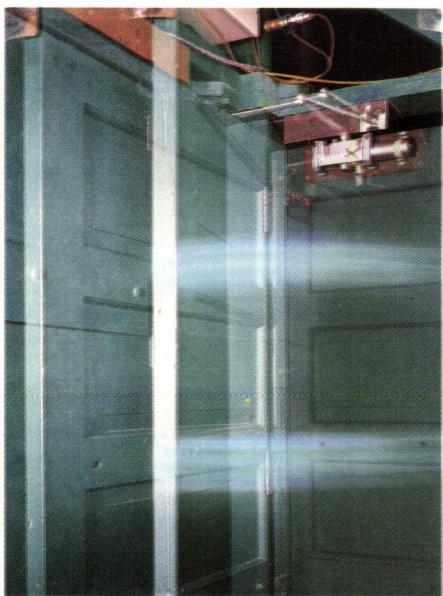
Circle 95 on information card



LCN CLOSERS HAVE NO EQUAL.

The more you look, the harder it is to find a door closer "equal" to the LCN Smoothee. For materials, design, manufacturing and performance, no one else comes close.

Three off-the-shelf Smoothee closers (Series 4013,



The Test Goes On!

4014, and 4015) have been in continuous operation for over a year. They've already quintupled the 1.5 million cycles ANSI requires of architectural grade closers, and they're still going strong!

ETL Testing
Laboratories, Inc., official BHMA (ANSI) testing laboratory for door closers, is witnessing this record-breaking test.

LCN Smoothees perform better because they're made better. We use cast iron cylinders and forged steel pistons and arms. Our manufacturing facilities are continually improved to maintain the leading edge in the industry. As a result, LCN

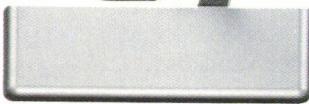


designs have proven themselves through years of successful performance.

When you want value and quality, specify and insist on LCN Closers...period.

For general information, see Sweet's Section 8. Or, in U.S.A., contact LCN Closers, P.O. Box 100, Princeton, IL 61356; (815) 875-3311.

In Canada, Ingersoll-Rand Door Hardware, Mississauga, Ontario LE5-1E4; (416) 278-6128.



LCN CLOSERS

Part of worldwide Ingersoll-Rand

Looking at Windows from A Variety of Viewpoints

In a series of case studies.

By Douglas E. Gordon and M. Stephanie Stubbs.

There are many ways to look at windows and skylights: for example, as light sources, providers of exterior views, protectors from exterior elements, stylistic decorations, or components that provide scale. In the following analysis of five case studies of residential fenestration, two aspects are considered—technical and esthetic. The one considers windows as building components, the other as contributors to a building's appearance and the pleasure and comfort of its users.

The technical matrix is taken from the American Architectural Metals Association's newly published *Window Selection Guide*, the esthetic matrix from *A Pattern Language* by Christopher Alexander, et al. (Oxford University Press, 1977). The AAMA guide lists the following 13 technical considerations for window selection.

Structural factors include wind load, operating forces (which primarily affect the hardware design), ability of the horizontal framing members to withstand the dead load of the glass without excess deflection, and, in some areas of the country, seismic forces.

Water resistance, the ability of the window to resist rain penetration, is affected by geographical location and terrain, as well as the height of the building. Windows in areas subject to wind-driven rain are subject to pressure differentials created by the force of the rain striking the outside face of the window. This excess pressure tends to force rain through the window seals if the window assembly is not designed to equalize pressure and drain water to the outside.

Air leakage through both infiltration and exfiltration can cause energy loss as well as drafty discomfort to building occupants. The effects of wind, stack action, and the HVAC system design all contribute to the window design equation.

Heat transmission can be a blessing or a curse, depending how well control systems allow heat to move in the direction that will make the occupant more comfortable. To optimize heat flow, the window designer must consider the heat transmission that occurs by conduction, convection, radiation, and air leakage.

Shading, an age-old method of controlling heat and glare, takes a wide range of forms. External devices include trees, overhangs, awnings, and louvers; internal devices range from drapes and venetian blinds to solar window films.

Condensation, which occurs on the interior surface of the glass or framing elements when their temperature drops below the dew point, is a particular problem in colder areas. Insulating glass and thermal break frames are two potential solutions for combating condensation.

Daylighting frees building occupants from total dependence on artificial light and saves energy. The designer can manipulate window size, spacing, and location, as well as a number of

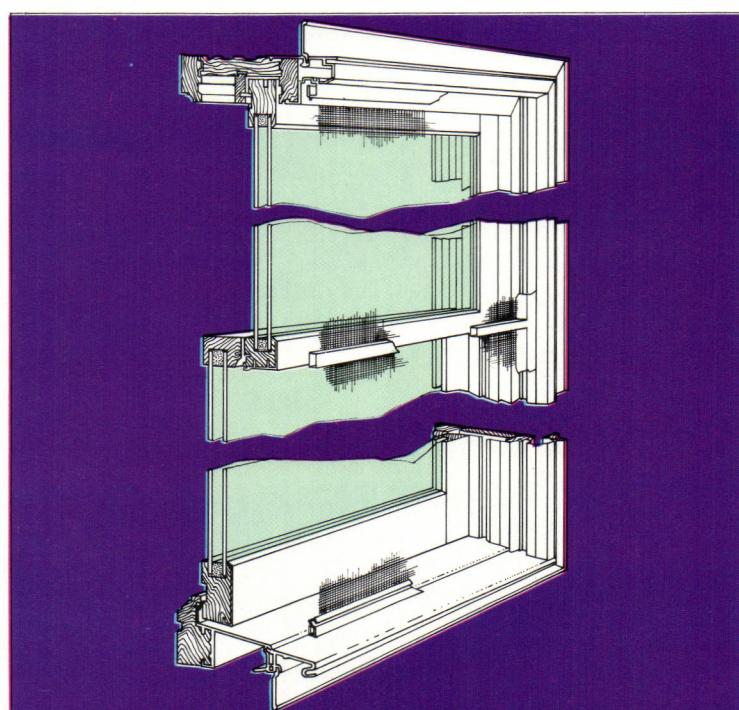
shading options to control the flow and intensity of daylighting to the interior.

Sound reduction can be achieved with multipane window assemblies that have air spaces between the panes, acoustical glass, varying thicknesses of glass panes in an assembly, the tilting of one pane in the assembly, and tight seals. Because STC ratings, the common measure of sound transmission, are specific to a particular construction, an STC rating for a particular window assembly is accurate only for the size of the assembly tested.

Ventilation provided naturally through operable windows depends on building orientation and on window placement and size. Occupancy type, height of the building, and cost-effectiveness are major factors in the decision whether to provide natural ventilation for everyday use. Natural ventilation through operable windows may serve as an emergency backup in case of HVAC breakdowns, power failures, or fire.

Operation of windows is necessary if natural ventilation is to be an option, but it also serves the diverse functions of permitting emergency egress and allowing easier cleaning of the window.

William H. Grover, FAIA: 'The double-hung window is one of the greatest inventions of all times . . . [Y]ou can make it large or really small, and it still looks good.'



dows. Operable windows can be divided into two major categories: those operating in the plane of the wall, such as double-hung windows, and those projecting from the plane of the wall, such as awning or casement windows. In either case, the amount of force necessary to operate the window and the requirements for safety from intruders and protection from insects when the window is open are major design factors.

Durability and maintenance rank high on the list of design considerations for any building component that is to be exposed to the elements. Architects must have a good sense of the expected lifetime of various components and must consider frequency and ease of maintaining each component part. Maintenance includes hardware repairs, parts and glass replacement, and inside/outside window washing.

Safety may mean operable windows for fire emergencies to allow intake of fresh air and exhaust of smoke, as well as egress for occupants and ingress for firefighters. Emergency operable windows can be operated manually or mechanically. Window

Howard J. Backen, AIA: '... [A] classic example of window design for housing fenestration is August Perret's house at the Rue Franklin Apartments in Paris, done in 1903.'



safety also implies design of the assembly so that building occupants, including small children, are not in danger of falling out.

Economics of any window system must be considered on the basis of life-cycle cost, which is only one part of an economic analysis that must include energy and lighting costs.

The esthetic matrix for fenestration analysis includes factors described in *A Pattern Language*. "... [T]owns and buildings will not be able to become alive, unless they are made by all the people in society, and unless these people share a common pattern language, within which to make these buildings," Alexander explains in the book. "The elements of this language are entities called patterns. Each pattern describes a problem which occurs over and over again in our environment, and then describes the core of the solution to that problem, in such a way that you can use this solution a million times over, without ever doing it the same way twice." Although *A Pattern Language* is used mainly as a design tool, the following patterns form an interesting method for comparative analysis.

Indoor sunlight: If the right rooms are facing south, a house is bright and sunny and cheerful; if the wrong rooms are facing south, the house is dark and gloomy. Place the most important rooms along the south edge of the building, and spread the building out along the east-west axis.

Entrance room: Arriving in a building, or leaving it, you need a room to pass through, both inside the building and outside it. This is the entrance room. At the main entrance to a building, make a light-filled room that marks the entrance and straddles the boundary between indoors and outdoors, covering some space of both. The outside part may be like an old-fashioned porch, the inside like a hall or sitting room.

Zen view: The archetypal Zen view occurs in a famous Japanese house, which gives the pattern its name. If there is a beautiful view, don't spoil it by building huge windows that gape incessantly at it. Instead, put the windows that look onto the view at places of transition—along paths, in hallways, in entryways, on stairs, between rooms. If the view window is correctly placed, people will glimpse the distant view as they approach the window or pass it; but the view is never visible from the places where people stay.

Tapestry of light and dark: A building with a uniform light level has few places that function as effective settings for human events. Therefore, let common rooms open onto a wide terrace or a porch that looks out to the street. Raise the terrace slightly above street level and protect it with a low wall, which allows a person sitting near it to see over but prevents people on the street from looking into the common rooms.

Light from two sides of every room: Given a choice, people will always gravitate to rooms that have light from two sides and will leave the rooms that are lighted from only one side unused and empty. Locate each room so that it has outdoor space on at least two sides, and then place windows in these outdoor walls so that natural light falls into every room from more than one direction.

A sunny place: The area immediately outside the building to the south—that angle between its walls and the earth where the sun falls—must be developed and made into a place that lets people bask in it. Inside a south-facing court, garden, or yard, find the spot between the building and the outdoors that gets the best sun. Develop this spot as a special sunny place—the important outdoor room, a place to work in the sun, a place for a swing and some special plants, or a place to sunbathe. Be very careful to position the sunny place where it is sheltered

from the wind. A steady wind will discourage use of the most beautiful place.

Street windows: A street without windows is blind and frightening. Equally uncomfortable is the interior of a house that bounds a public street with no window at all on the street. Where buildings run along busy streets, build windows with window seats looking out onto the street. Place them in bedrooms or at points along a passage or stair where people pass frequently. On the first floor, keep these windows high enough for privacy.

Ceiling height variety: A building in which the ceiling heights are all the same is virtually incapable of making people comfortable. Vary the ceiling heights throughout a building, especially between rooms that open into each other, so that the relative intimacy of different spaces can be felt.

Windows overlooking life: Rooms without a view are prisons for the people who have to stay in them. In each room, place the windows so that their total area conforms roughly to the appropriate figure for your region (for instance, 25 percent or more of floor area in the San Francisco Bay region). Position them to provide the best possible views of life—street activity, quiet gardens, anything different from the indoor scene.

Half-open walls: Rooms that are too closed obstruct the natural flow of social occasions and the natural transition from one social activity to another. Rooms that are too open fail to support the differentiation of events that social life requires. Adjust the walls, openings, and windows in each indoor space until you reach the right balance between open, flowing space and closed, cell-like space. Do not take it for granted that each space is a room, or, on the other hand, that all spaces must flow into each other. The right balance will always lie between these extremes: no one room entirely enclosed and no space totally connected to another. Use combinations of columns, half-open walls, porches, indoor windows, sliding doors, low sills, French doors, sitting walls, and so on, to hit the right balance.

Interior windows: Windows are most often used to connect indoor space with the outdoors. But in many cases an indoor space needs a connecting window to another indoor space. Put in fully glazed, fixed windows between rooms that tend to be dead because they attract too little action or are unusually dark.

Natural doors and windows: Finding the right position for a window or a door is a subtle judgment, but very few ways of building take this into consideration. On no account use standard doors or windows. Make each window a different size, according to its place. Do not fix the exact position or size of a door or window frame until the rough framing of the room has been actually built and you can stand inside the room and judge, by eye, exactly where you want to put it. When you decide, mark the openings with strings. Make the windows progressively smaller as you go higher in the building.

Deep reveals: Windows with a sharp edge where the frame meets the wall create harsh, blinding glare and make the rooms they serve uncomfortable. Give the window frame a deep, splayed edge—about a foot wide and splayed at 50 to 60 degrees to the plane of the window, so that the gentle gradient of daylight makes a smooth transition between the light of the window and the dark of the inner wall.

Dormer windows: The top story of a building should be right inside the roof, surrounded by it. Wherever you have windows in the roof, make them dormer windows that are high enough to stand in, and frame them like any other alcoves in the building.

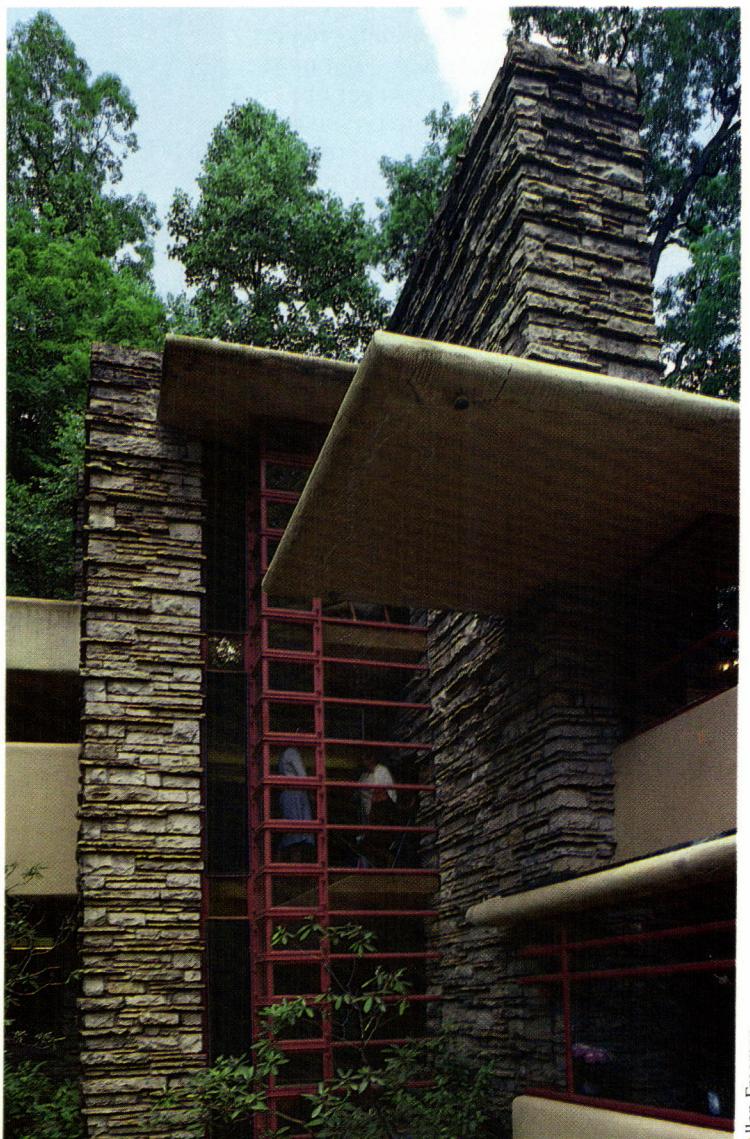
Windows that open wide: Many buildings nowadays have no opening windows at all, and many of the opening windows that

are built don't do the job of opening that windows ought to do. Decide which of the windows you want to open, choosing those that are easy to get to and attractive—that open onto flowers you want to smell, pleasant breezes, and paths where you might want to greet people. Then put in side-hung casement windows. Here and there, go all the way and build full French windows.

Filtered light: Light filtered through leaves or tracery is wonderful. Where the edge of a window or the overhanging eave of a roof is silhouetted against the sky, make a rich, detailed tapestry of light and dark to break up the light and soften it.

Small panes: When plate glass windows became possible, people thought that they would put us directly in touch with nature. In fact, they do the opposite. Divide each window into small panes. They can be very small indeed and should hardly ever be more than a foot square. To determine the exact size of the panes, divide the width and height of the window by the number of panes. Then each window will have differently sized panes according to the size of the window.

William F. Stern, AIA: 'I have always been enthralled by the way that Wright ganged casement windows . . . open[ing] up the wall by using a highly modulated expansion of glass.'



Allen Freeman



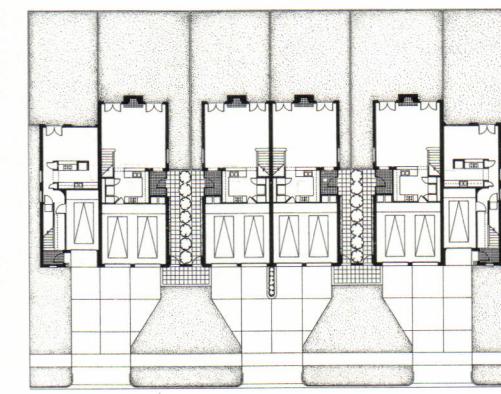
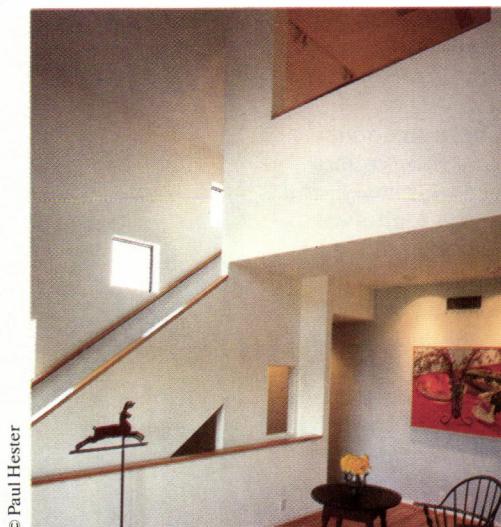
Wroxton Street Town Houses, Houston, by William F. Stern & Associates

"The site of the Wroxton Street town houses is in a very nice neighborhood, but views are not the best," admits project designer William F. Stern, AIA. "But most of Houston is so flat that if you get up high enough to see over the trees you can get some quite surreal views. In this project, there are some interesting sight lines toward downtown Houston seven miles away, and I was specifically responding to that."

The architects strove for interior windows and cameo views to the outside. Particularly in the end units, they placed the living room and master bedroom on the second floor and confined the first floor to entry, dining, and kitchen areas. "By elevating the living room and overlooking it with a loft, we could push the space upward," Stern explains. "With that extended height, we were able to introduce a variety of light sources, to get the play of light coming in from the side, above, and below."

The Wroxton Street town houses face north and run east-west. The interior units capture light from the front and back because they have open plans and open backyards. "In Houston, you have to be very careful about the quantity of windows you use and the direction the windows face," says Stern. "The most controlled light in Houston, in terms of heat gain, is north light. West light is wicked in the summer—it's just intolerable."

The only fixed windows in the town houses are those that ascend the stairs, and arched "Zen-view" windows. These were designed to allow a person to look across the loft to the outside as though the view were hanging art. "The arched



window in combination with the porch motifs is a play on classical 1930s cottage form and was a way of relating to the rest of the houses in the neighborhood," Stern says. "Actually, I didn't fully realize until after the units were built just how significantly the views are picture-framed by the open walls and windows. It's almost like being on a ship and looking through a porthole."

The many windows on the north side of the units were determined by their relationship to the second-story porches. The units are set back on the street, and the windows are recessed behind porches. Stern says it was important to have the porches facing the street to create that significant threshold—composed of street, yard, and house—that is a tradition of American domestic architecture. The entryways between the units also create a transition from street to living space. The south-facing back terraces have a half-height wall between units.

The anodized aluminum windows are standard stock. Careful detailing includes 1-x-4-inch wood trim, painted a slightly lighter shade to emphasize a more traditional window/frame vocabulary. "Generally, we would prefer to use wood windows," Stern says, "but the budget for this project [\$50 per square foot] wouldn't allow it."

The architects built detailed, $\frac{1}{2}$ -inch scale models of each unit, not so much for sun studies as to analyze the effects of light inside the individual interiors.

Stern is a less than enthusiastic advocate of skylights. "In Houston's intense heat, they just aren't a good idea, even with low-E glazing. I also think that bubbles on a pitched roof look awful—I cringe at perfectly good architecture with these silly skylights on the pitched roofs. There was some talk of skylighting the bathrooms for this project, but we didn't because of cost considerations and the heat gain. As it turned out, though, we put a skylight over the stairs in the middle units that aren't visible from the street. To minimize heat gain the skylights are small, with the ceiling opening flaring to maximize light diffusion inside," Stern says.

Stern finds much to admire in the way Frank Lloyd Wright used windows. "I've always been enthralled by the way that Wright ganged casement windows. I think it was one of the first times in modern architecture that an architect, either here or in Europe, understood how to open up the wall by using a highly modulated expansion of glass."

Baldwin House, Essex, Conn. William H. Grover, FAIA, of Centerbrook Architects

The owner of the Baldwin house in Essex, Conn., decided to build this new residence on the lot adjacent to the house he had lived in for years. After his wife's death, he considered a new home smaller than his existing and rather dark Federal-style house, which had relatively small rooms, small windows, and low ceilings. He told project designer William Grover, FAIA, and project manager Leonard Wyeth, AIA, of the local Centerbrook Architects, that he wanted an "uplifting" residence that would be bright and airy, thus giving the architects a viable opportunity to ply their considerable skills in filling a residence with natural light.

The house gathers light from above and from all sides and lets it play the length and breadth of the 1,500-square-foot, open-plan space. Essentially one room, but with the option of closing off a bedroom and a study/guest room, the house rises to two-story height at its center, the focal point of which is a chimney for the wood stove. A corbeled opening in the chimney pulls light all the way through the house and also moderates the chimney's mass. Details such as mirrored cabinet doors help reflect outdoor light to the interior.

Definition of scale plays an important role in the fenestration design of all of Centerbrook's houses. "Had we used small or standard-sized windows, the house would undergo the 'Boeing 707' effect—tiny windows make an airplane look enormous, and the same thing happens in a building," says Grover. "We did the converse and used giant windows placed around the house to make it look more intimate and cottagelike, when in fact it's almost as big as a two-story house."

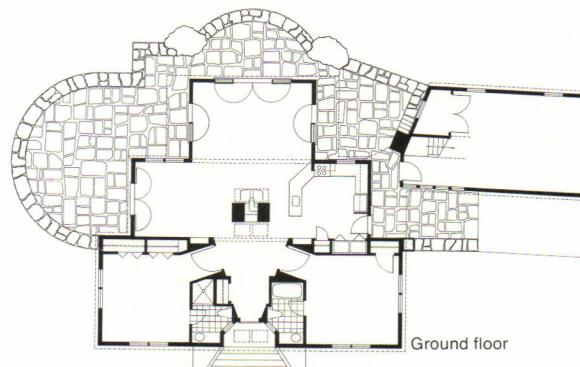
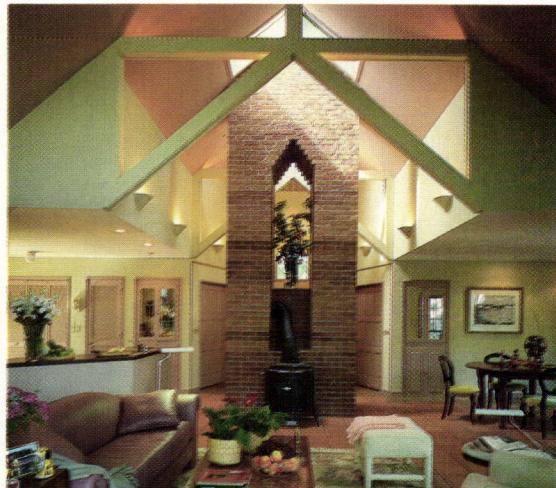
The scale of the windows is equally important to the interior space. "Whenever possible, we try to get the big windows either all the way to the ceiling or as close to the floor as possible so that they don't just cast a shaft of light through a wall, but rather immediately reflect light off the interior planes," Grover says. "For example, the double-hung windows in the master bedroom are almost floor-to-ceiling height, so the light reflects off both the floor and ceiling."

Following the same principle, the architects try never to locate a skylight in the middle of a ceiling, but rather to

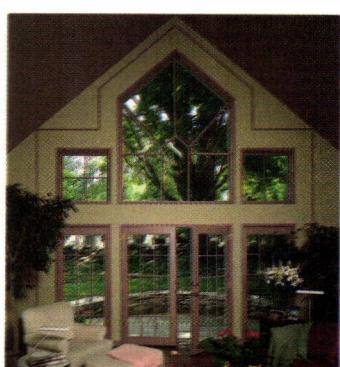
Photographs © Peter Mauss



Photographs © Peter Mauss



© Peter Mauss/ESTO



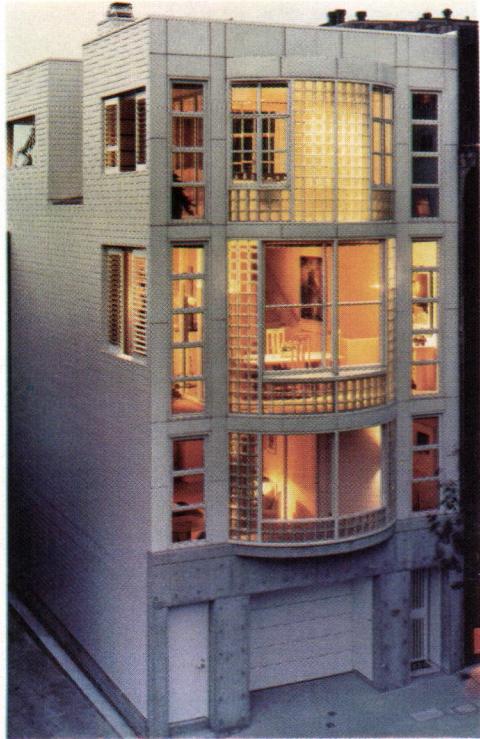
place it adjacent to a wall so that glare is reduced. The Baldwin house has two small, stock skylights against either side of the central chimney, so that daylight reflects down into the interior off the chimney and emphasizes the texture of the brick. Additional skylights in the covered entryway allow natural light to be captured through high windows in the two bathrooms. Without these apertures in the entryway roof, the amount of light admitted to the bathrooms would have been very limited.

The house maximizes its southern orientation, both for views and for energy conservation. The site is a strip of land between a quiet street and a picturesque cemetery separated from the property by a low stone wall. The house is sited precisely so that a huge maple tree directly in front of the wall shades the large expanses of glass on the south facade. The tree allows solar gain when it sheds its leaves in fall, and it was carefully pruned for through-views below its boughs. "We didn't do any formal energy calculations," Grover says. "Nowadays, in a house this size, if you do a good job of shading the south side and use an appropriate amount of south-facing glass, the house will probably be efficient. We did a lot of that

type of calculation in the 1970s, and I think we've got a pretty good feel for it." All the Baldwin house's windows are double-glazed for energy efficiency and to negate the need for storm windows. Screens permit ventilation in summer.

The "mullions" on the large, fan-shaped window (as well as on the rest of the south-facing fenestration) are in reality custom, one-piece, painted wood frames fabricated by a carpenter and fastened to the structural window frame—one on the inside and one on the outside. They are removable, so that if a window is broken, the mullion frame can be removed, the glass replaced, and the frame put back in place. Grover says his firm also has achieved the appearance of small panes with silicone, but the "removable mullion" method proves more convenient.

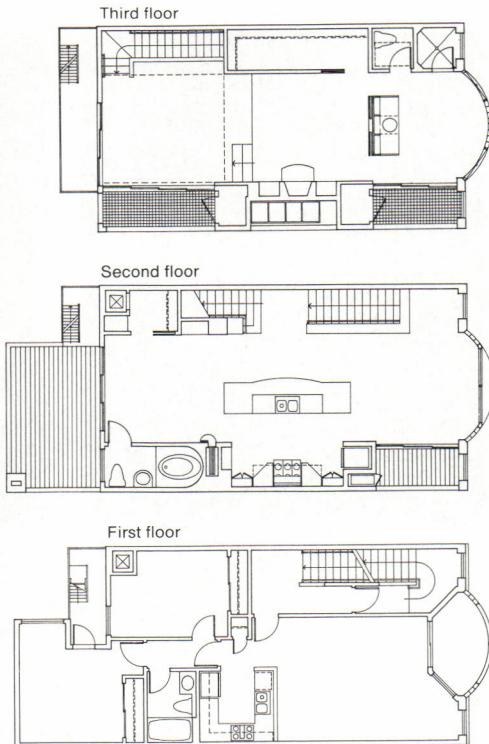
Grover calls himself a major fan of the double-hung window. "It's one of the greatest window inventions of all times," he says. "It doesn't get in the way, it doesn't flap into or out of the house, you can open the top and/or bottom, it's easy to clean and maintain, and you can make it large or really small, and it still looks good. So, my major window inspiration is the unsung inventor who created it."



Glickman Residence, San Francisco, by Backen Arrigoni & Ross Inc.

In San Francisco, designing for seismic lateral forces probably takes precedence over all other technical concerns, and it definitely affects fenestration design. Openness was a design goal in the Glickman residence, a four-level, 2,575-square-foot, single-family house in downtown San Francisco; therefore, fixed shear walls, a common foil for lateral seismic forces, were inappropriate. Instead, the architect, the local firm Backen Arrigoni & Ross Inc., placed steel columns on either side of the front facade's bay window. The columns cantilever out of the ground from a depth of 30 feet, allowing a "free" facade to support the large expanses of windows as well as allowing an open plan without cross walls. "As you walk through the house, you always are aware of light both at the front and back simply because there are no required cross walls," says project designer Howard J. Backen, AIA. "What that means, too, is that the two steel columns have a concrete base, which encloses the garage and doesn't need to be opened up except for a solid door and a gate entry at the side."

Privacy concerns generated the different fenestration on each level of the house. On the top floor, angled see-through windows flank a central, glass block bay



window, which provides long side views yet avoids looking directly into the house across the street. The client wanted privacy at the top level because it houses a "morning" room coupled with a bathroom. "With the windows opening on the two sides, you get diagonal views—to Russian Hill on the right and Coit Tower on the left," Backen explains. "That allows the owner to sit at the table in the middle of the room and have privacy, because the diagonal views are extended views. A step-down and half-wall separate the morning room and an adjacent bedroom from a back sitting room, and you're always aware of the light source from the north side as well as the south side."

The middle floor and bottom floor (a rental unit) reverse the glass block and view glass pattern. These spaces don't require the privacy of the top level, and so they allow the building occupants to "read the street"—one of the owner's major program requirements. On the kitchen level, there is a retractable wall at the back part of the house that can pull out to make the back portion into a guest room with a sitting room and bathroom. "The wall is generally left open, so that, standing in the front of the room with the wall open, you read the garden in back," says Backen. "When a spare bedroom is needed, it's simply a matter of pulling the wall shut—the rest of the time the room is open. The owner ends up having his cake and eating it too."

The rental space on the first floor has typical sliding glass doors, which are recessed back on a V-shape so that their module doesn't become as important to the facade as if they were out on the surface. That recess allows a little bit of a balcony for the first-floor rental unit, which Backen says is typical of San Francisco bay windows. "We had a very tight footprint for fitting the required spaces into the rental unit," he explains. "It would have been nice to have pulled that level back to incorporate a side window, but then there was no way the plan would have worked."

"We wanted to get as much light as possible into this long, narrow house, which meant opening both ends," Backen continues. "We were fortunate in that the building next door is short enough to allow side-window daylighting. We built a model to test the light, which the owner now keeps in his house. We then performed a sun pattern study to ascertain that the light would work in the way we thought it would."

The windows were custom made by a manufacturer who uses a standard cross section but makes glass units to any size. The vertical bar down the center of the bay window is a structural element for the window wall that stabilizes the block. "We didn't want to curve the big window, even though the glass block curves," Backen explains. "But by allowing this vertical structure to carry down the front of the building, we were able to get some depth between the outside structure and the window walls on the middle and bottom living levels."

The only window that cannot be cleaned from the inside is the big square window, which had to be fixed because of its size. However, the fixed sash is within easy reach of a ladder in the garage.

"We've done a lot of housing—some 10,000 units spread all over the place," Backen says. "But generally, we don't have the budget to work with glass block and steel frame. I think a classic example of window design for housing fenestration is August Perret's house at the Rue Franklin Apartments in Paris, done in 1903. It's one of the first good buildings introducing the combination of steel frame and glass block. It's a building that was lost for a while, but the tremendous flexibility of plan makes it as modern a building as you can imagine. That building is one I showed the client, to explain the combination of the glow you get from glass block coupled with the clear glass."

Newstead House, Providence, R.I., by Crissman & Solomon Architects Inc.

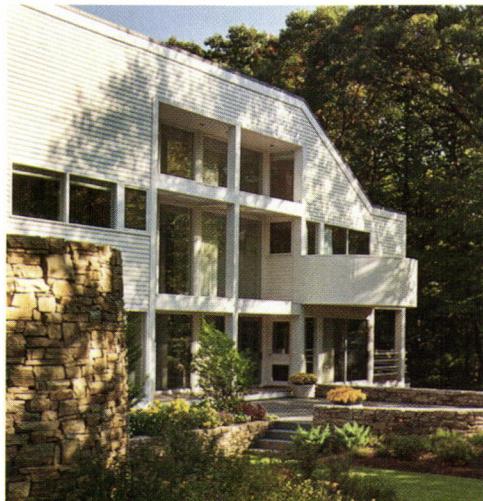
The Newstead house in Providence, R.I., by Crissman & Solomon Architects Inc. of Watertown, Mass., employs a linear, south-facing plan responding to its narrow, sloping site as well as to its owners' desire for a gallerylike space to display their collection of Oriental rugs. These requirements supplied an ideal setting for a unique fenestration scheme that is accented by a 30-foot-long, pitched skylight topping the transition space between the main entry and the living areas of the house. The reflective glass skylight in the bow-wall entryway casts exhibit light on the curved wall and throws dramatic shadows into the space.

On the interior bridge, overlooking the main living space, a glass block window wall creates an entirely different effect. "Actually, the reason we used glass block on the north facade is far more pragmatic than philosophical," says James H. Crissman, FAIA, the principal in charge. "That part of the house looks directly into the back yard and therefore the back side of the neighbor's house, and see-through glass would have been bad from both vantage points."

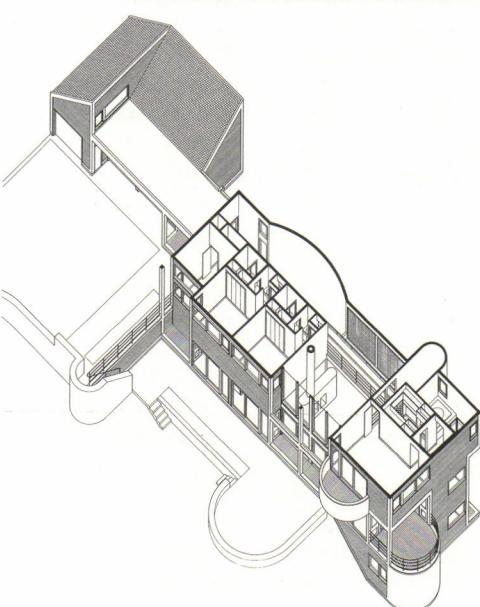
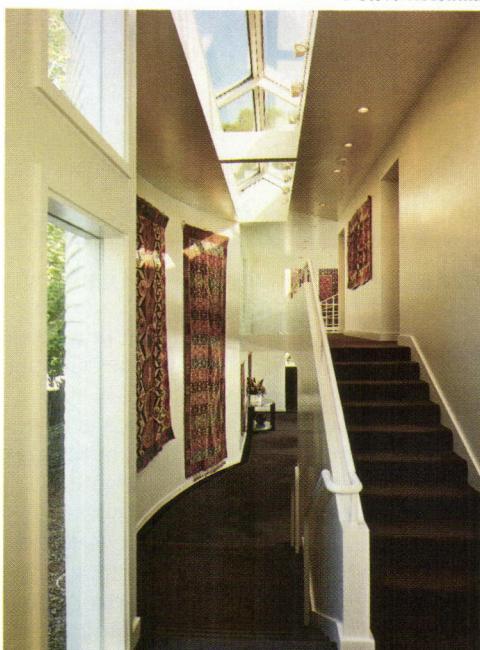
The south facade of the house, on the other hand, opens up to the sun and the view. "We did a lot of studies and calculations to design the recessed south windows and their sunshades. The recess with two levels of sunscreens does control the amount of sun that gets in, so that in the summertime it's virtually blocked out to a small patch on the floor," Crissman says. "We would not have added any other controls on those windows, except the owner felt uneasy about being exposed at night in the house, so we ended up adding curtains on motorized tracks."

Crissman explains his firm's approach to window design, which is apparent in the Newstead house: "I think our architecture is intuitive without being intellectual. We have a design vocabulary that has grown out of 15 years of residential projects. Exterior scale and form with respect to wall openings is a good example because, with some variation, we keep it fairly consistent among projects. The basic unit we've used most often is either an eight- or ten-foot module of sliding glass (which is sometimes 15 feet wide), and then a typical door width, which is nominally a three-foot operable unit. The ten-

© Steve Rosenthal



© Steve Rosenthal



foot and three-foot modules are based on commercially available casement windows and regular doors. Coupled, the window and door combination produces a room with about 13 feet in a dimension, with no maximum to it."

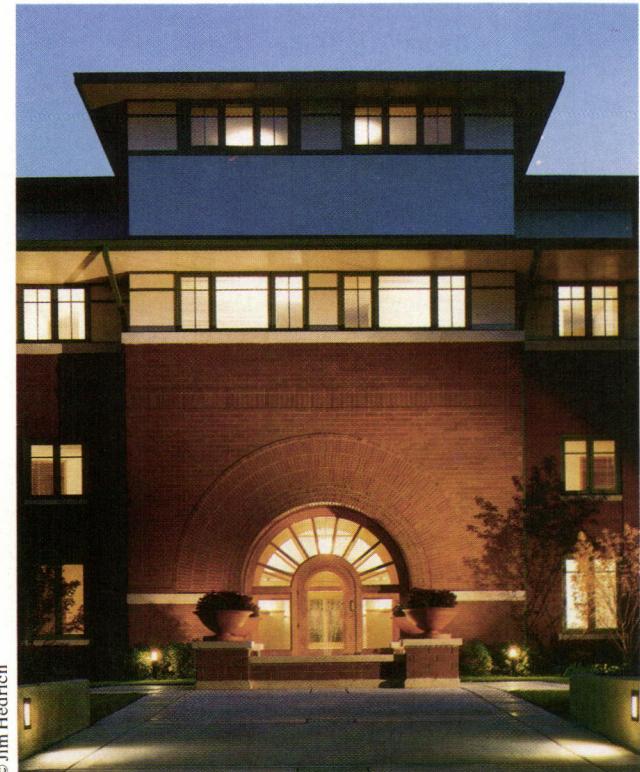
To take advantage of natural ventilation, the architects provided sliding glass doors to supplement a three-foot-wide fixed panel in the dining room at grade level. The upper-level fixed windows are flanked with operable casements. The upper glass in the living room is fixed. On the projecting balconies, a narrow piece of glass is fixed and to the right of that is another sliding glass door, which is the same as the one below it.

Light comes from a minimum of two directions in every room except the bathrooms, which are the only totally interior rooms in the house. The bathrooms receive light from skylights.

The Newstead house was an interesting study in building operations, Crissman says, because the clients were very concerned about operational issues. "They were worried about roofs not leaking and heating systems being efficient and all those things an owner ought to call an architect for help with. So we had to approach this as we should, not saying 'it looks nice this way' or 'we think you ought to build it this way,' but with proof that this was sound technologically as well as esthetically."

Crissman has found skylights to be a particularly tough technical problem in fenestration design. "Any architect who says that he or she didn't have any problem with skylights is stretching the truth. The problems we've seen, interestingly, are not as related to glazing as they are to some of the other attributes of the house. For instance, we once placed a long skylight on a flat roof. This skylight created a tremendous heat buildup in this west-exposed building with a high wall of glass. We think there were such extremes of temperature, due to the heat buildup and then the freeze/thaw cycles in the winter, that seals must have broken between the roof opening and the skylight. The whole roof had to be taken up and redone. We gave the new roof a slight pitch and put a protective cover inside the skylight, which solved the problem."

"With the Newstead house, the seemingly flat roofs have a deliberate pitch of about a quarter of an inch per foot for drainage. There's no way to detect the pitch from street level because all the coping is kept level. That was an incorporated part of the learning process."



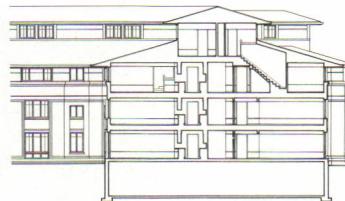
© Jim Hedrich

Prairie Court, Oak Park, Ill., by Nagle, Hartray & Associates Ltd. Architects

Prairie Court, a 125-unit, four-story rental apartment complex by the Chicago firm Nagle, Hartray & Associates Ltd., won a design competition for adaptive use of a downtown Oak Park, Ill., site three blocks from Frank Lloyd Wright's Unity Temple and one block from the historic district containing Wright's home and studio. Prairie Court, which derives its formal order very distinctively from the Prairie School style, also tells the story of Nagle, Hartray's philosophy of fenestration design.

"We always incorporate the 'eyes-on-the-street' concept for windows in residential projects," says James L. Nagle, FAIA, partner in charge of the project. "We do a lot of courtyard buildings, with everybody facing a public space, either the sidewalk or the garden. With that kind of connection, we eliminate blank areas, and set up a neighborhood, defensible space. Prairie Court is essentially a doughnut, with windows on the outside and the inside."

"Another approach that our firm usually takes is a turnabout from modernist, Miesian walls of glass—normally the facades we design are 40 percent glass," Nagle continues. He feels that limiting the percentage of glass allows better control of the privacy afforded to tenants as well



© Jim Hedrich

as the energy consumed by the building.

Donald J. McKay, AIA, project architect of Prairie Court, adds, "The third concept we incorporate is to treat the building differently from top to bottom—we have a base, a middle, and a top. This is basically an esthetic consideration, but it also makes sense for the individual windows." Prairie Court has its longest windows at the bottom, intermediate windows in the middle, and the smallest on the top; these are recessed and read more horizontally. The dormers, marking the change to two-story units at the top level, are set about halfway back into the roof and add much to the scale of the building. The overhangs, also reminiscent of the Prairie School style, were sized mainly for scale but are large enough to protect the upper-floor casement windows from rain. The ground-floor windows are of the fixed transit variety, and all are of thermopane glass in deference to Lake Michigan winters. Windows can be screened in summer, allowing natural ventilation to supplement the central air system.

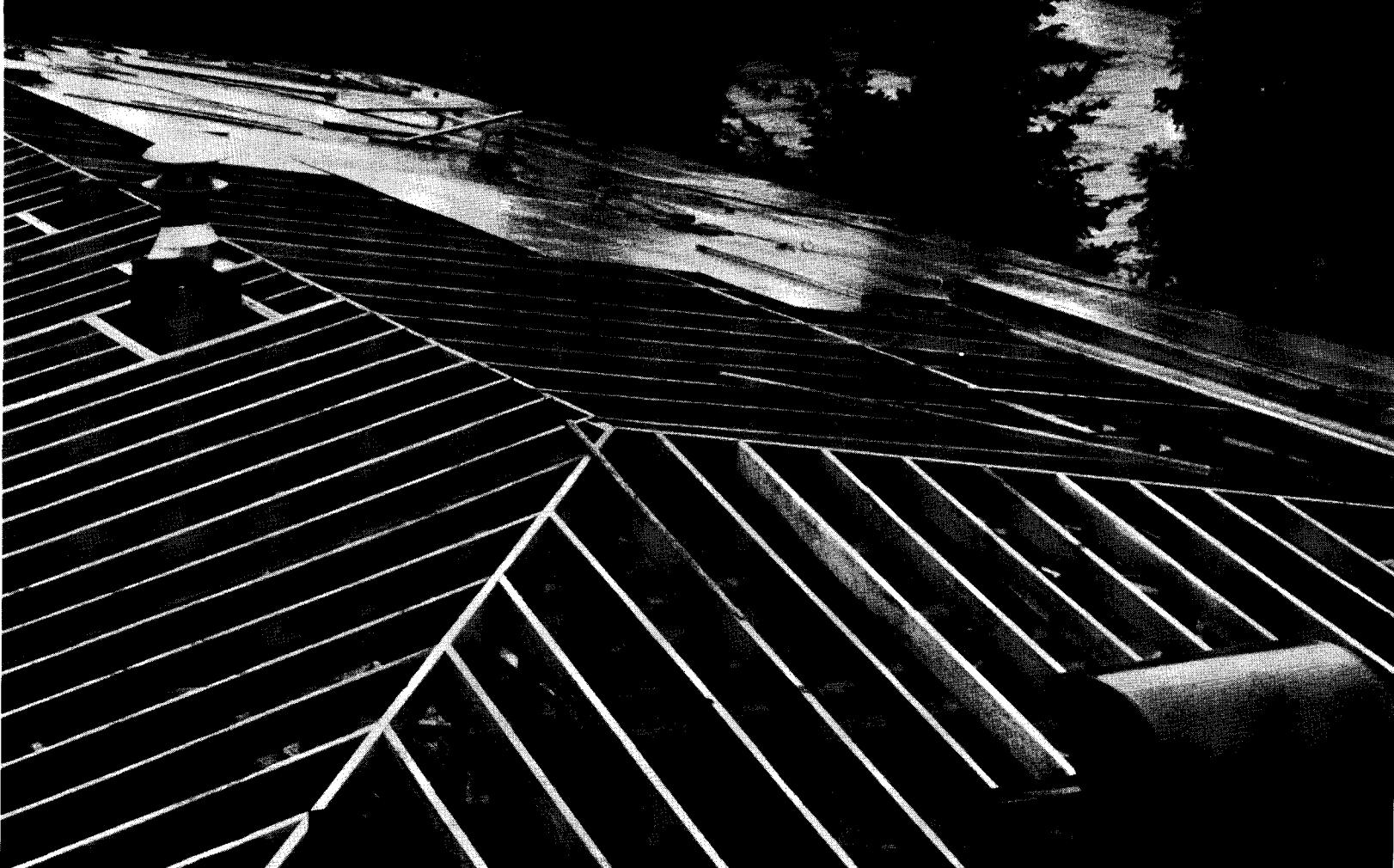
The Prairie School style also imposed the design discipline of very solid, unfenestrated corners, which the architects capitalized on to stabilize the building against wind and lateral forces. They chose to modulate the building's scale by pulling the plan forward and back. Lifting the building up also influenced the fenestration design. The architects placed a garage

underneath the entire building but could go down only three feet into the ground because of an existing electric line. Their solution was to lift the building five feet up from street level and berm against it. The effect of raising the ground floor above the ground is doubly advantageous: passersby on the sidewalk can't see into the ground-floor units, and all the tenants enjoy more of a view.

A small-pane effect is created by snap-on mullions on the inside of the windows. "We would have preferred true divided lights, but we simply couldn't afford them," says McKay. "The windows are stock—right out of the catalogue." He estimates that the cost differential between custom and stock size windows is roughly 25 percent, but this varies widely by project size and type. The window frames in Prairie Court are pine, painted on the exterior, with a transparent finish on the interior to allow natural wood to show in the apartments.

The arched main entrance echoes Francisco Terrace, the Wrightian apartment building just to Prairie Court's east. "We scaled our entry arch to the rest of the building and were influenced by the fact that Wright treated the entrance differently from the rest of the openings in most of his buildings," says McKay. "The broad mass of the arch also gives you a kind of compressed scale as you enter the building. It's an air-lock entry for energy conservation, and the glass is quarter-inch plate glass." The fan light over the door is one piece of glass, and the two side lights are separate pieces. The oak components of the entryway frame were custom fabricated in a millwork shop, and the pieces were assembled in the field by a carpenter. The entryway was put in place around the structure.

Though the Prairie School influence is obvious throughout the design, Nagle sums up the success of the project by saying, "The trick here was to try to be authentic, to do a very straightforward job, but certainly something that was not just a rip-off of the Prairie School. We won the competition because this project was low-scale, while most of the other buildings were tall. We oversized the windows as an improvement over the set Prairie style—the window openings in this building are larger than what you would find in the surrounding area. The fenestration facing the courtyard is a good example. The windows appear bigger with the surrounding brickwork, which ties the first and second floors together." □



This Is The Last Reroofing Pitch You'll Ever Have To Read.

Here are five reasons why:

1 APA systems can stop your leaks once and for all.

APA reroofing systems are made with structural panels that help prevent leaks permanently. Since the panels are more stable than competing systems, expansion and contraction are minimized. So the roof membrane has less chance of failing.

2 APA systems improve flat roof repairs.

The problem with most flat roofs is that they're not really flat. Sooner or later they develop low spots where water collects. And sooner or later they develop leaks. APA structural panels, on the other hand, go down flat. And stay flat.

3 APA systems make pitched roofs cost-effective.

Constructing a pitched roof over an existing flat surface is becoming increasingly popular because the design itself discourages

leaks. And because it can save as much as 20%, *up front*, over a complete flat roof repair.

4 APA systems work with almost any design and support system.

Pre-framed, long span, or special components. Wood or steel trusses, ordinary joist and purlin systems, glulam or timber framing.

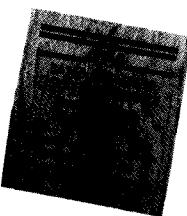
5 APA systems help improve energy efficiency.

A poorly insulated roof is, of course, one of the major energy drains for any building. But with an APA reroofing system, you have an opportunity to add insulation in a highly cost-effective manner.

The APA trademark is the mark of quality. You'll find it only on panels that can

stand up to APA's tough product testing. So when you use APA-trademarked panels, you know you have products that perform.

To find out more, send for our free booklet. It'll help you lower the cost of raising the roof.



And it's yours for a coupon.

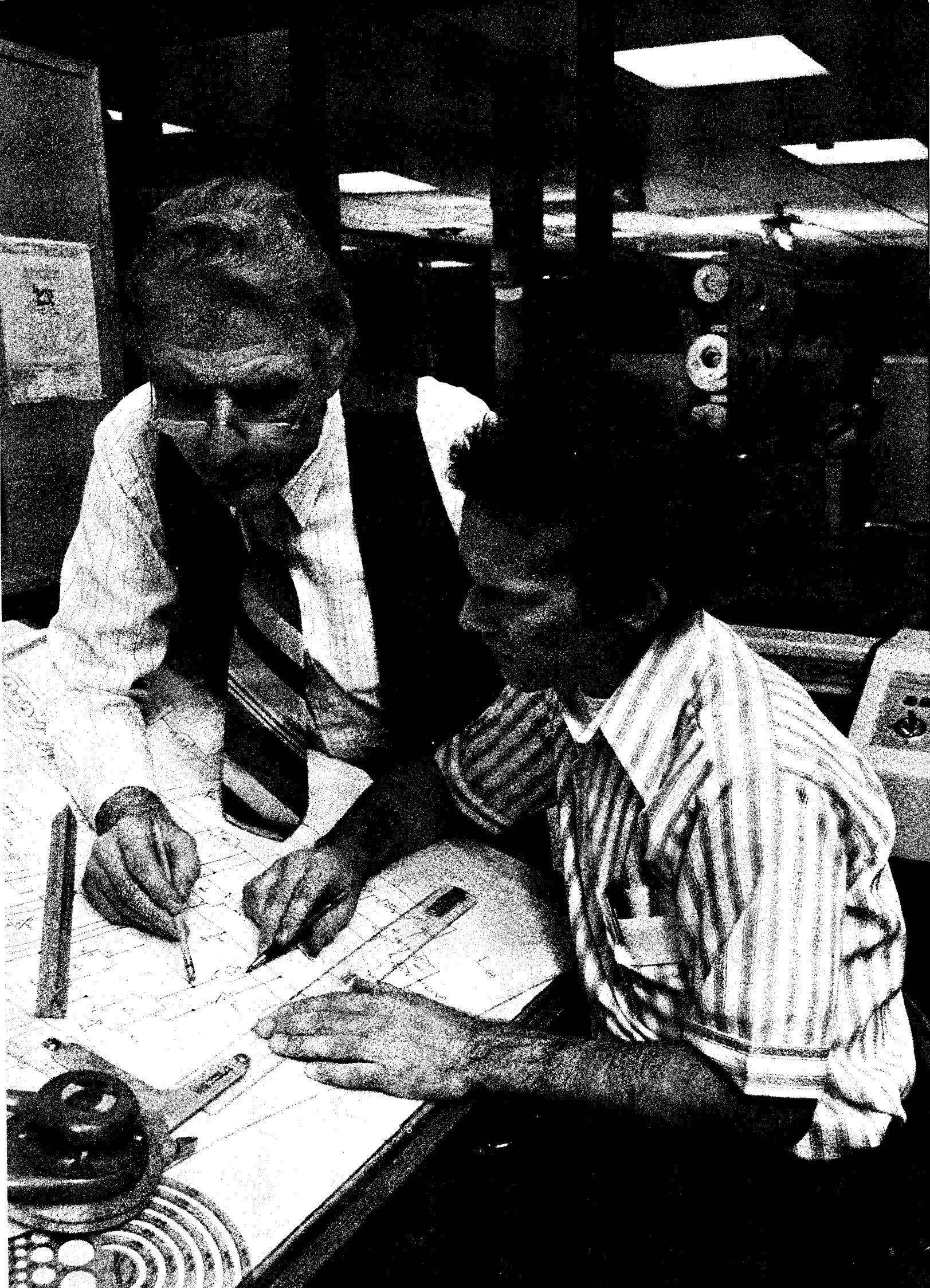
Name	<hr/>	
Title	<hr/>	
Company	<hr/>	
Address	<hr/>	
City	<hr/>	
State	Zip	<hr/>
Telephone	<hr/>	

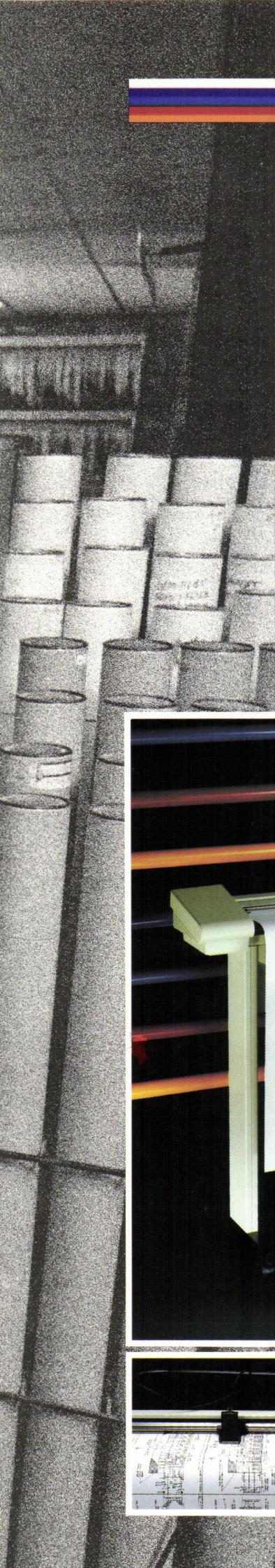
201-078-ARC



P.O. Box 11700, Tacoma, WA 98411-0700
(206) 565-6600, Fax (206) 565-7265

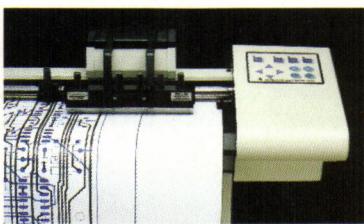
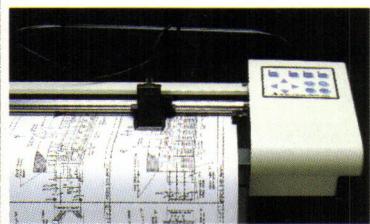
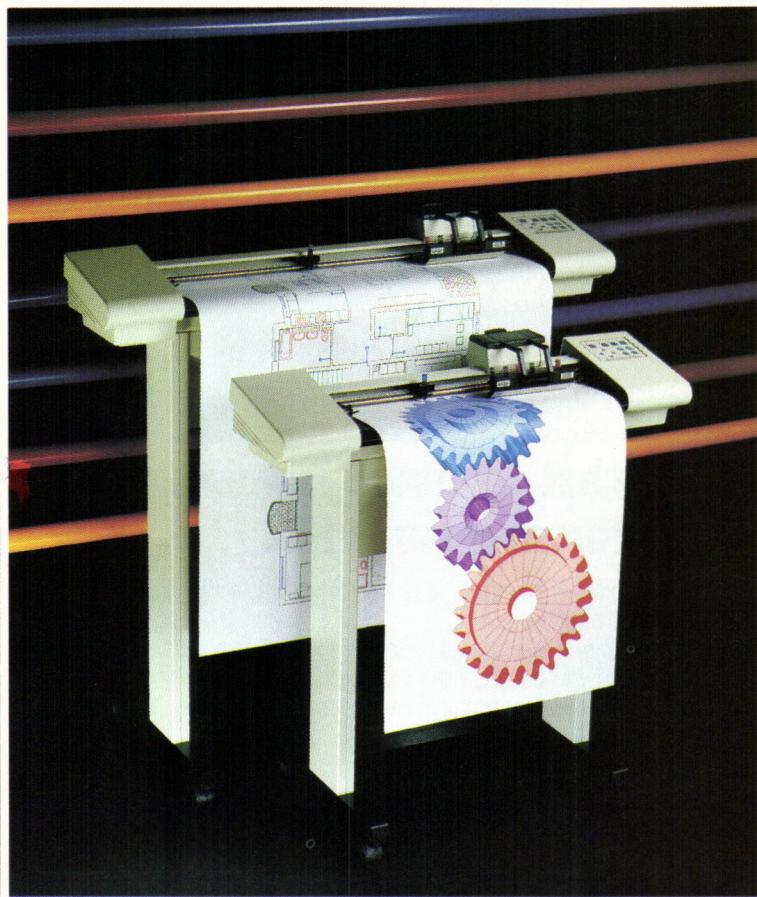
Circle 103 on information card





**For nearly
three decades,
companies
have drawn
on Houston
Instrument.**

**Now it's
your turn.**



*Houston Instrument, PRIORITY RESPONSE, and
SCAN-CAD are trademarks of AMETEK, Inc.*

Select a Houston Instrument™ plotter, and you're not only opting for the best price/performance on the market—you're choosing an industry leader with a proven track record. For nearly 30 years, companies have relied on HI for quality products, reliable service, and attractive prices.

Take HI's sleek new DMP-60 Series plotters—they're designed to impress even the most demanding CAD professional. Industry experts agree:

"Houston Instrument's DMP-61 delivers a remarkable combination of high speed, gorgeous plots, and very competitive price."



*Editor's Choice
Dec 22, 1987*

HI's commitment to solid, innovative products is underlined by designed-in versatility. The SCAN-CAD™ option lets a DMP-60 Series plotter double as a scanner. The Multi-Pen accessory speeds colorful, complex drawings. And HI's one megabyte buffer board lets the DMP-60 Series plot several originals—without tying up your computer.

Proven performance, proven value—that's HI plotters. Flexible. Fast. Accurate. Software compatible. Reliable. And backed by HI's PRIORITY RESPONSE™ customer support programs which include overnight product-replacement service, leasing, and warranty coverage.

All this from an industry leader that companies have drawn on for nearly three decades—Houston Instrument.

Now it's your turn. Begin by calling 1-800-444-3425 or 512-835-0900 or writing Houston Instrument, 8500 Cameron Road, Austin, Texas 78753.

**HOUSTON
INSTRUMENT**
A DIVISION OF **AMETEK**

Circle 105 on information card

They claim it— We did it.



PC-PRISMA delivers what others are promising: “big system” CAD performance on a PC.

Finally, get the sophistication of a high-end, turnkey CAD system on your personal computer. Big system power on a PC platform. At speeds you've never seen before.

How? With “CAD in a box,” ISICAD's new leading-edge concept in personal workstation technology. An advanced set of 2D, 3D, analysis and data base software, coupled with a portable, ultra high-performance graphics controller that plugs into your PC. PC-PRISMA delivers uncompromised performance for every design, drafting and information management task.

Check out PC-PRISMA: your total CAD solution. You'll get software proven in over ten years of use and backed with over a thousand man-years of development along with leading-edge hardware for unparalleled speed. Because you can't afford to wait.

They claim it, but we deliver it. Decide for yourself. See PC-PRISMA today.
Call 1-800-556-1234 ext. 281 (or 1-800-441-2345 ext. 281).

ISICAD, Inc.
1920 West Corporate Way
Anaheim, CA 92803-6122

ISICAD
DESIGN SYSTEMS
FOR THE REAL WORLD

The Many Uses of Computer Aided 3D Modeling

By Mark Lauden Crosley, AIA

Architecture is a three-dimensional craft, even while much of design documentation traditionally has been two-dimensional. Times are changing, though, as computers bring new forms of three-dimensional modeling into the architecture office.

Computer programs for modeling buildings are proliferating, yet many architects find it increasingly difficult to understand the role these models can play in a professional design practice. Is 3D computer-aided design simply a replacement for the renderer or model maker, or is it more? Already some of these programs offer capabilities that go far beyond rendering; soon they may affect all aspects of design and drawing production.

Most firms that have 3D software use it as a rendering tool for presentations. Programs with automatic surface shading can produce elaborate (if somewhat cartoonish) images, and even programs with only wire-frame (shape outline) capabilities create accurate enough bases for hand-rendering. The ability to produce quickly many views of the same building is very attractive. Throw in the ability to take animated tours of a project and you've got a remarkable presentation tool. Clients are beginning to request extensive visual previews of a project—and who can blame them?

As a design medium, 3D modeling provides almost instant feedback about design decisions. However, few firms use models in their production of construction documents, and not without reason. Often 3D programs can be difficult for the uninitiated to use, and few offer adequate means of producing the two-dimensional drawings required. And, of course, the idea of basing working drawings on 3D models is a conceptual leap from traditional practice. Software is evolving rapidly, however, and, as it becomes more practical to link modeling and drafting, use of 3D modeling for documentation will become more common.

The third axis

Many CADD systems are limited to the two-dimensional "flatland" that is defined by x and y coordinate axes. In these systems, the "primitive" drawing elements—lines, circles, arcs, and such—are all mathematically defined according to these two axes and have no coordinates in a z (transverse) axis. Some drafting systems stretch this to its limits by projecting two-dimensional objects into space, producing the illusion of three dimensions. This visual trick has obvious limitations. It works only with objects that have the form of a vertically extruded section. A cross section can-

not be cut through a projected object, and neither can the object be rotated out of the x-y plane. These systems are often called 2½D drawing programs, and they are of limited use to architects. Their inability to model a basic shape such as a pitched roof limits their role mostly to building-massing studies or space planning.

Paper drawings, the industry-standard documentation medium, are a shorthand code for representing three-dimensional forms on a flat sheet. Unlike the paper medium, computers are not limited to one plane (except in their video displays). Three-dimensional modeling programs enable a designer to assemble electronic models that can be viewed from any location, typically in perspective.

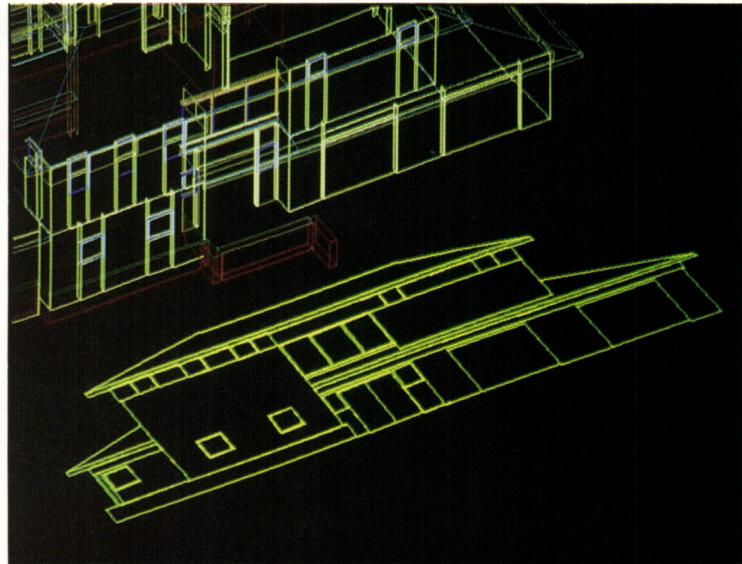
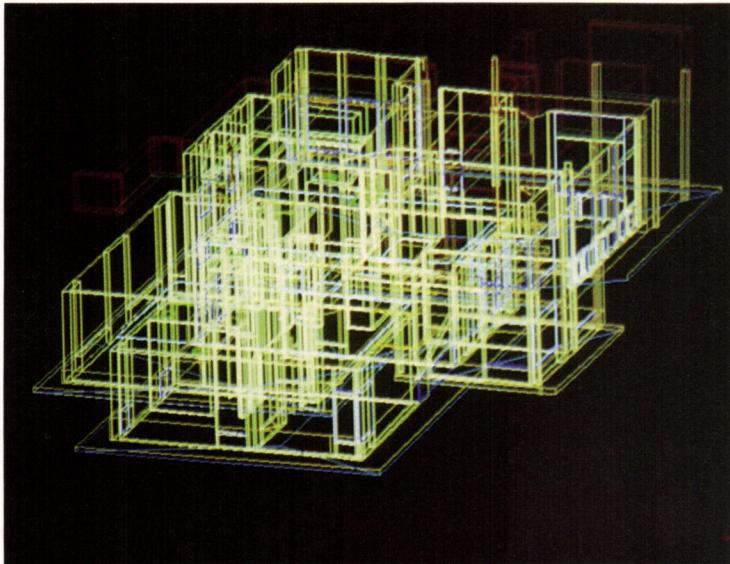
Computers have their own shorthand for representing 3D objects on a two-dimensional video screen. First, most programs can view models in plan or elevation, as if they were composed of interwoven 2D drawings. Second, virtually all modeling software uses wire-frame 3D images, the familiar skeletal outlines that delineate edges in space to quickly illustrate shapes and can automatically "hide" the lines that lie behind planes or objects. Finally, there are programs that offer automatic surface shading—a few have the sophisticated ability to cast shadows from any specified light source. Color shading, however, is a time-consuming process, and most programs still offer it as a rendering tool rather than a working medium. Adding a "paint" program allows the designer to touch up minor modeling errors or try out different color combinations on shaded images.

The available 3D programs all use graphic elements with z-axis coordinates, but there are important differences among them. The ability to model curved lines and surfaces, for example, and the degree of realism in the appearance of modeled objects, depend on the program selected.

Typical programs are based on plane geometry, using a technique known as surface modeling. In these systems models are developed from building plans by extruding walls vertically, in much the same way as 2½D systems. Then, planes and curved surfaces can be placed in any orientation desired. Generally these programs include automatic surface shading capabilities, although a few 3D programs are limited to wire-frame imaging and can represent objects by outline only.

Some other programs use "solid" 3D shapes, modeled either as enclosed forms (boundary representation) or as true solid volumes (constructive solids geometry). Such models provide the designer with the option of realistic shading, and they can be "sculpted" as well, as if they were made of modeling clay. The physical properties of these solid objects can be subjected to engineering analyses.

But solids modeling has seen limited use in architecture. It is both computer-intensive and complex, and it is more sophisti-



cated than necessary for representing most architectural forms. An exact model of every object in a building is rarely required. Nevertheless, as manufacturers continue to produce less expensive and more powerful hardware, the use of solids modeling may grow as it becomes more affordable.

Interfacing

No matter what approach a program takes, 3D modeling is inherently complex. Programs that are difficult to learn (and use) have made architects wary of experimenting. The designers who most need 3D programs often have the least time or patience to become software experts. It is crucial, for instance, that CADD commands and menus be easy to use. Obscure codes can make any CADD program frustrating and inaccessible, and three-dimensional programs have been notoriously obtuse.

Accurate visual perception of a 3D-modeled image can be tricky. Some programs let you view a model as a single two- or three-dimensional image from a specified viewpoint. But it is not easy to graphically locate a single point in three-dimensional space using a single image on a two-dimensional video screen, even when models are displayed in perspective. The most effective way around this dilemma is to display several views at once, like multiple windows viewing the same model. By viewing a plan and elevation on the same screen, a designer can draw a wall in plan and then locate its position in elevation (the second floor, for example) and its height (say, a four-foot-high half-wall) by referring to the elevation on the screen. A perspective displayed in a third window also helps. Without this plan/elevation positioning capability, the only other option is to draw in plan and enter each z-coordinate numerically—a difficult and non-intuitive task.

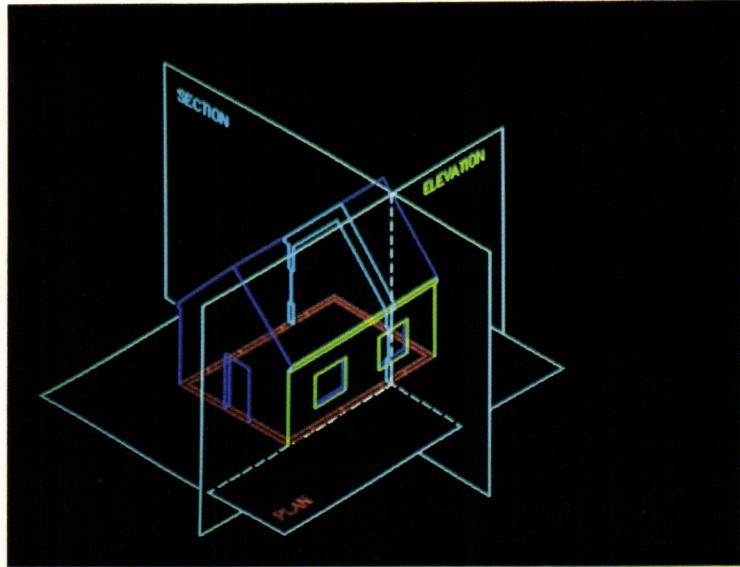
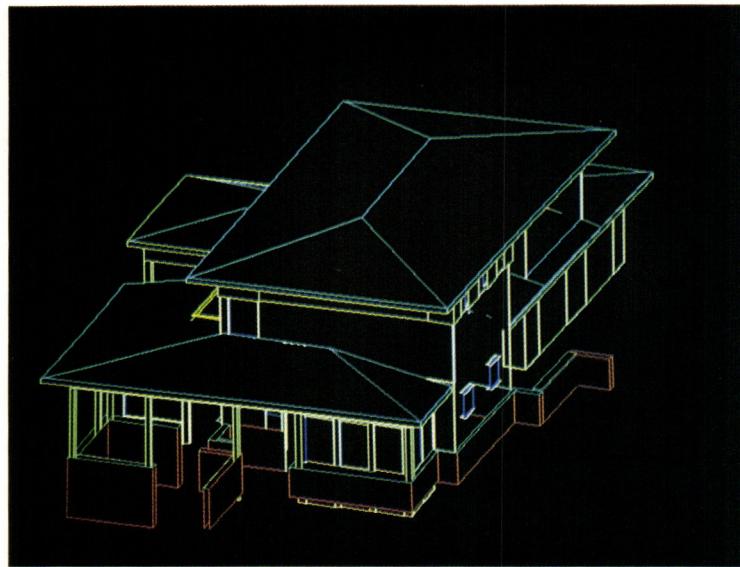
“Clipping,” another important feature, may be used to hide extraneous material so that models can be viewed clearly. Clipping planes can be specified behind which the computer hides objects as if a curtain had been stretched through the model. In an elevation, for example, walls, furniture, and any other objects behind the subject wall must be hidden; for an interior elevation, the objects in front of the wall also must be clipped.

All 3D modeling programs allow the designer to work in plan,

as does a 2D or 2½D program. Typically, wall lines are drawn and automatically extruded to a specified height, starting from a horizontal reference plane. Three-dimensional objects, such as windows and doors, should be inserted by the software at a height that the designer specifies while working in plan. But what if the designer wants to draw details on an elevation? This requires the ability to specify a vertical construction plane on which to draw (as if on paper) using both two- and three-dimensional elements. Many currently available programs lack this capability.

Software that provides only for modeling buildings one line or one plane at a time can never be a useful architectural tool. Instead, the designer needs to work with minimal distraction to avoid having to stop and draw each wall, door, or fixture line by line. Though it is often desirable to draw 3D primitives (basic objects) within a model as work progresses, it tends to be more productive to insert predrawn objects from an object library. Some 3D programs come with libraries of standard architectural forms and also allow for drawing and saving custom forms as work progresses. It is also important to be able to place a door or window in a wall automatically without having to go back and “repair” the wall, which is one reason architectural modeling software must be designed with architectural tasks in mind. Unenhanced “generic” software leaves too many bothersome housekeeping tasks to the user.

The inclusion of parametric drawing techniques in some programs is a trend that promises to simplify 3D modeling. Parametric programs allow for easily created variations of a prototype form simply by specifying new dimensions. Some programs have built-in parametrics, while in others the parametrics can be added with user-programming languages such as Versacad’s CPL or Autocad’s AutoLisp. For example, Autocad AEC can model three-dimensional stairs in a wide variety of configurations, based on the user’s answer to a few prompts. Sigma’s Arris software includes a “Smart Walls” feature that automatically resizes 3D walls, including door and window symbols, if the wall type needs to be changed. Isicad’s Prisma has similar capabilities, which enable a designer to modify many aspects of a model by changing the numbers in a data base. An analogy to this is updating drawings by changing the numbers on a door schedule. Tricks like these make the difference between a laborious, unpleasant modeling experience and a process that lets you concentrate on design.



Linking 2D and 3D

For 3D modeling to be truly useful, it must be easier than making cardboard models, and it should also simplify drafting. There is little, if any, economy if the designer can create a 3D model but then is forced to draw a whole new set of 2D drawings of the same project. Instead, the model should be the source of the 2D drawings. Only recently have CADD programs begun to approach this ideal.

Many of the bare-bones three-dimensional modeling programs offer 3D capabilities with few drafting tools—often missing are text, dimensioning, and even the ability to plot a useful architectural plan. Some of these programs compensate by offering the ability to “extract” 2D drawings and send them to drafting programs. The problem is that, once two separate data bases (computer files) are established, any work done to one must be repeated in the other if both are to remain up to date. As a result, single-purpose modeling programs are used mostly for conceptual work. A project is then developed on a CADD drafting system, with separate plan, section, and elevation drawings.

Some vendors offer separate program modules for drafting and modeling. The modules are actually different programs with similar interfaces and commands. A 2D drawing can be passed to the modeling module for use as a reference, or 2D views can be extracted from a model for use by the drafting module. Versacad is an example of such a program, with an excellent (but separate) 3D modeler. Unfortunately, these systems have the same problem as stand-alone modelers: there are two separate data bases, so work done in one module must be repeated if the 2D and 3D representations of a model are to remain consistent.

A CADD program that performs both modeling and drafting operations using a single model can be called integrated. While there are no PC-based systems available that fully meet this description, several are partially integrated. Software like Arris and Autocad AEC will model a project from schematics, in three dimensions, using a plan-based interface, but creating a fully three-dimensional data base. Simply by working in plan, such models can easily be developed through the construction document phase. Since 3D symbols—such as windows, doors, and stairs—can be placed with little more effort than 2D symbols,

it's possible to keep the 3D model up to date as work progresses. The benefit of this is that, once all the 3D data has been added, new elevations or sections can be extracted at any time.

One negative aspect of these programs, though, is that not all of the drafting capabilities are usable in nonhorizontal construction planes. In other words, it is not possible to dimension or annotate an elevation in place. It must be removed from the model and developed on an x-y drawing axis.

True integration of 2D and 3D means that plans, elevations, and sections can be drawn within the same model data base. When an appropriate construction plane, such as a wall surface, is chosen, details can be added to a facade in the same manner as on a traditional paper elevation, and then it can be dimensioned and notes added. In essence, the 2D drawing is a report based on the full building model.

One advantage to this approach is that each building element must be drawn only once. Then, if a window must be moved on the elevation, the window moves in plan as well. There is no longer any danger of drawings being inconsistent. Instead, they are different views of the same model. The other advantage is that the designer's efforts on plans and elevations can be viewed in 3D at any time, allowing work to be viewed in context.

Such software is technologically challenging for both users and manufacturers. Providing drafting commands in all planes has stymied many software developers. Integrated drafting and modeling requires the most sophisticated interface of all—it calls for multiple on-screen views, and the views of individual construction planes must be clipped so that extraneous graphics don't clutter up the screen. In particular, all the notes and dimensions that are attached to one construction plane should be displayed only when that plane is in use.

The biggest hurdle of all is the need for very advanced computer hardware. Three-dimensional data bases are large, and a large data base can be unacceptably slow to display and manipulate. For now, only small projects (up to perhaps 10,000 square feet) can be fully modeled in this manner without being divided

Above, 3D drafting with Autocad software. Left to right: wall layers that need clipping; elevations drafted in place on a vertical plane; elevation with most hidden lines removed; all 2D drafting drawn within a single building model.

up into smaller models (by floor level or by area). Alternatively, a building can be only partly modeled by limiting 3D work to, say, the exterior walls—interiors can be drawn in plan only. However, progress in this area continues so rapidly that it is possible most architectural projects could be fully modeled within the next few years.

For architects and drafters, there's a conceptual challenge as well. This is, after all, a significantly different way of working. But since 3D modeling can retain the sense of working on plans, sections, and elevations, it isn't really radically different from drawing with a pencil. More serious may be the logistical implications of documenting a project in a single model. Only the smallest designs can be developed on a single workstation by one person, so methods of sharing models are called for. Again, it's not too difficult to divide and reassemble models, but the ultimate solution must come from software developers. Building models should be available to multiple users, simultaneously, via computer network. This, too, is coming.

So what can you do now?

Two of the pioneer building models, McDonnell/Douglas's Graphic Design System (GDS) and GMWC's Rucaps, are British imports. Rucaps, for example, offers a fully integrated system that allows multiple users to work on a single model simultaneously. Both systems, however, require the use of expensive, high-end VAX computers, and both are considered more difficult to use than most PC-based systems.

Among the available PC systems, Sigma Design's Arris has particularly good 3D features. Its drafting and modeling tools can be used on the same fully three-dimensional data base, and Arris is often used for impressive presentations. However, few users are now applying the software's 3D tools to design tasks or construction documents. Recent improvements in the Arris user interface and documentation may make its 3D capabilities more accessible.

A number of modular 2D/3D programs are available, with the inherent drawbacks of the genre. On the low-budget end, there are several modular programs with severely limited architectural functions. More appropriate to architectural work is the high-end Versacad, but its modular design is best suited to presentation graphics. Company sources have said that a more integrated product may evolve as it is adapted to the Macintosh or the new OS/2 operating system.

Microtecture's Datacad offers an integrated data base for drafting and modeling, and its features are targeted directly at architects. Like Autocad and Arris, many of its drafting tools are limited to use in plan. Microtecture recently introduced a superb surface-shading module as an "add-on" option.

In its upcoming Release 10 of Autocad, Autodesk provides a fully integrated combination of drafting and modeling features. As previewed at the AEC Systems show, the program uses multiple on-screen viewports with excellent clipping capabilities, and it allows the use of all Autocad drafting features in any construction plane. Models can be shaded with a separate "postprocessor" program, AutoShade, and simple animated sequences can be produced with a program called AutoFlix. However, since Autocad is a general-purpose program, Autodesk's AEC software needs further enhancements to fully exploit Autocad's architectural modeling potential.

Other promising 3D programs also were previewed at the AEC Systems show, including enhancements to Isicad's Cadvance and the still unreleased modeling software being developed by SOM and IBM.

The new medium

A new tool such as three-dimensional computer modeling can profoundly affect the architectural workplace. It will initially have an impact on how we work, and it may ultimately affect what we design.

To use computer-aided design effectively, it should be brought in early in a project. This is particularly true of modeling, because designs should be evaluated in 3D as early as possible. Increasingly, design development graphics can be recycled into working drawings, particularly when elevations and sections can be derived from work carried out in plan. As CADD is used to its full potential, less and less redrawing is necessary.

Integrated modeling and drafting can make working drawings ("working models") more useful as well. When a model is maintained with accurate 3D graphics throughout production, the visual and spatial implications of last-minute decisions can be evaluated. Accurate renderings can be produced for the client at any point. These benefits are not without their costs, though. Besides learning to use the appropriate software, work of team members has to be coordinated more carefully, standard roles must be re-evaluated, and consideration needs to be given to restructuring traditional project phases.

Will new tools affect the architecture we design? If you feel that study models of clay and foamboard will each tend to produce different architectural forms, then solid modeling and surface modeling may each encourage different types of design. If you believe that the medium is less important than the basic nature of building materials or the ideas that underlie a design, then our tools may not have such a dramatic impact.

Nevertheless, it's certainly true that software developers tend to presuppose a particular architectural working method, and it is important that these built-in biases support the work a firm produces. Sometimes a program with a single working mode is too confining. For example, the volume-oriented method used by Computervision's Personal Architect effectively restricts users to boxlike designs. A more flexible three-dimensional interface can support a sculptural approach, encouraging the exploration of vertical space and form. Programs that allow the assemblage of forms based on actual building components offer the possibility of a constructionist approach to design. This kind of "object-oriented" design may be an example of trend that is fostered by the modeling medium.

While it's important to consider the implications of new tools, they must be adopted one step at a time. Some traditional methods, particularly sketching, will always play an important role in design, and in fact complement computer-aided design. The first steps in the move to modeling can be gradual extensions of a CADD drafting system that has 3D capabilities. If the software is easy enough to use, the process need not be too difficult.

Fortunately, some modeling software has improved from the days when a degree in computer science was needed to use the high-end CADD systems. The trend toward ease of use seems to be accelerating and could place modeling capabilities in the hands of those who most need them—the designers who don't want to make a career of learning CADD.

As these designers seek better insights into the spatial aspects of their designs, and as drafters find ways to reduce redundant drawing, 3D modeling should become an increasingly common architectural medium. As clients begin to demand animated walk-throughs of proposed buildings, it may become an increasingly necessary one. □



LP4000 with
Multi-pen Changer

Here's what to look for when you want great value

IOLINE plotters are designed to give you more flexibility and features for less cost than any other machine of their kind.

For example, our plotters draw not only on A through E sizes of media, but also plot on hundreds of in-between sizes from 1.5" x 1.5" up to 37" wide roll stock. This saves you time and money by allowing you to make "check plots" on small, low-cost paper before committing to full-size media for final work.

It's easy also to set paper size, pen speed, micro-calibration, plot rotation—everything exactly as you want—by just tapping a few keys on the plotter's intelligent keypad. Plus, up to 3 sets of personalized defaults can be saved in its non-volatile memory.

They're fast, too. Our high-

performance LP4000™ draws at speeds selectable up to 20 inches per second (ips) axially with .001" resolution. For less demanding applications, our economical LP3700™ plots up to 10 ips axially with .0025" resolution.

Another feature is compatibility. IOLINE plotters emulate both HP-GL and DM/PL plotter languages so they work with a host of software like AutoCAD, VersaCAD, and CADKEY, to name a few.

Furthermore, our Multi-pen Changer™ option holds up to 20

pens and, with our hyperBUFFER™ option, you can dramatically increase plotting throughput with intelligent vector sorting and compression buffering of up to 1MB of plot data.

Now here's the clincher: Our top-gun LP4000 costs just \$5,495* less options. And there are other models priced even lower!

Why wait? Call us now at **1-206-775-7861**. Or, circle our reader service number and we'll gladly send you our brochure.

Remember, getting your money's worth—that's what IOLINE plotters are all about.

IOLINE™
LARGE-FORMAT PEN PLOTTERS

IOLINE CORPORATION 19417-36TH AVE. W LYNNWOOD, WASH. 98036 (206) 775-7861 TELEX 4949856 IC UI FAX (206) 775-2818
LP4000, LP3700, Multi-pen Changer, and hyperBUFFER are trademarks of Ioline Corporation. AutoCAD is a registered trademark of Auto Desk Inc. VersaCAD is a registered trademark of T&W Systems. CADKEY is a registered trademark of MicroControl Systems, Inc. *Suggested U.S. List price.

Circle 109 on information card



Only one other face is better known for miraculous facelifts.

Comedienne Phyllis Diller has pulled quite a joke on Mother Nature and Father Time. Her facelifts have created a look that some call miraculous.

You can achieve the same amazing results with any commercial remodeling project through the magic of Alucobond® material.

Made with two tough sheets of aluminum and a thermoplastic core, Alucobond material can take an

outdated building and turn it into an ultramodern structure. A transformation that can be performed economically and without major construction.

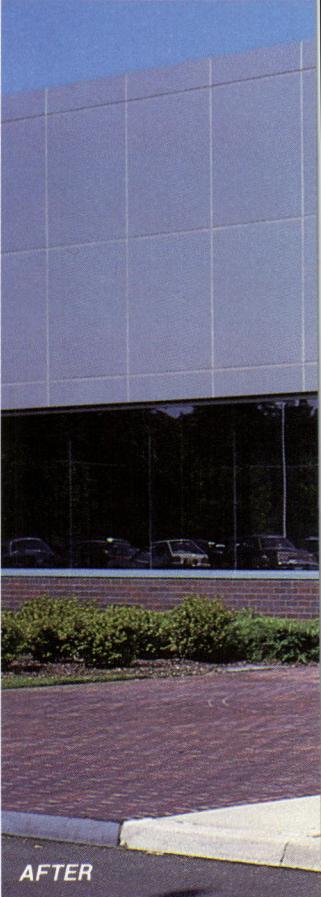
Alucobond material is virtually flat and doesn't oil-can like other metal building facings. Yet it's versatile and flexible enough to be formed or molded to the most exacting specifications.

Erection is fast and easy, usually without the

BEFORE



AFTER





Northfork Savings Bank, Mattituck, New York
Distributor/Fabricator: Lamparter Associates, Hauppauge, New York
Architect: Lawrence Smith Associates, Hauppauge, New York

need to adapt existing building members.

Even maintenance is made faster, easier and cheaper. The surface is kept sparkling clean with nothing more than detergent and water.

Only Phyllis' feathers are more colorful than Alucobond material. We offer 64 shades in all, including five anodized finishes. Lengths up to 28 feet, three standard thicknesses and two widths

add to our material's remarkable diversity.

For more information on Alucobond material and for case histories with photos, call (502) 527-1376. Or write Alucobond Technologies, Incorporated, P.O. Box 507, Symsonia Road, Benton, KY 42025.

Retrofit with Alucobond material. And give any old building a miraculous new lift.

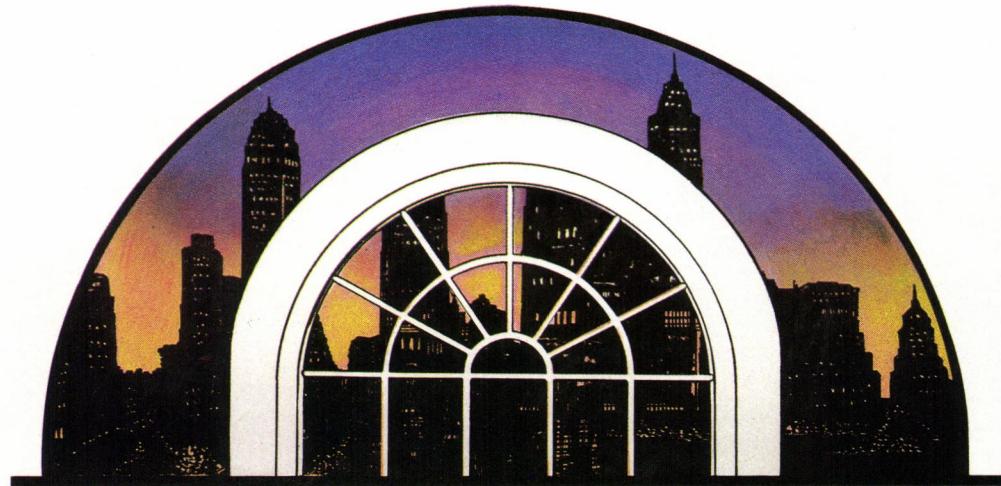


ALUCOBOND®

MATERIAL

More than just a pretty face.

Looking to the future.
Advancing into a new realm of architectural windows.



SEASON-ALL®
WINDOWS AND DOORS



Start with a great line of aluminum windows, then create, develop, design and produce. The result is an even greater line of windows. Season-all is progressing with new, innovative ideas and advanced technology to meet your architectural window needs. Performance guaranteed, since 1947! Transcend your window project into the superlative realm.

Call or write:
800-245-1404

Season-all Industries, Inc. • 1480 Wayne Avenue • Indiana, PA 15701

Circle 113 on information card

INDAL
GROUP OF COMPANIES

If It Comes to That, Here's How Litigation Works

A step-by-step review of the process.

By John A. Knutson

Every architect knows that litigation is an ever present threat, and probably most understand that construction litigation is emotionally taxing, expensive, and time consuming. It is only too apparent to attorneys who specialize in architect/engineer liability cases that few architects take an interest in learning about the litigation process until they are served with a complaint. By then, obviously, it's too late to organize your office to avoid the litigation. More importantly, this lack of planning may also mean office records are incomplete or your insurance policy is inadequate for the impending legal battle. The time to begin educating yourself about the litigation process is now, so that you can organize accordingly.

The entire litigation process commences when the plaintiff files a pleading, which is called a complaint. Depending on the statute of limitation within the applicable jurisdiction, the professional error or omission alleged in a complaint may have occurred years before the plaintiff files it. In California, for example, the law allows 10 years after substantial completion for an owner to file to recover damages for latent defects in either design or construction.

The purpose of the plaintiff's initial pleading is basically to give the defendant whatever information there is, or material facts that are known, to support the plaintiff's claims. Usually

the complaint is general in nature as to the precise problems. The complaint typically will set forth the identity of the defendants, the various theories of alleged liability, and damages. However, it should always be kept in mind that neither party is bound by the allegations in the complaint.

In addition to the complaint itself, there is another pleading called a cross-complaint. This is something that is filed by a defendant against either another defendant or some other entity or individual who is not currently a party to the lawsuit. In the construction litigation context, cross-complaints are generally for indemnity and contribution, either by virtue of some contractual relationship or what is called "implied indemnity." For example, a design professional who may have independently contracted with another design professional may file a cross-complaint against that person seeking indemnity and/or contribution for the potential verdict.

In a multiparty construction defect lawsuit, it is not unusual to have anywhere from 10 to 30 parties. Most of those parties are on the construction side (as opposed to the design side) by virtue of the great number of subcontractors usually involved.

Assuming that the complaint or cross-complaint is not subject to some procedural attack, the defendant or cross-defendant then responds by filing an answer that generally denies and/or admits the allegations in the relevant pleadings. Further, in the answer the defendant raises "affirmative defenses" that the defendant hopes to prevail upon and thereby disprove any assertion of liability.

You can be served with a complaint or a cross-complaint either personally or by mail, or the pleading can be delivered to your office during normal business hours and given to someone who appears to be in charge.

Obviously, the first thing you should do is read the complaint. After you have reviewed the complaint, you should attempt to identify and locate any and all of the documents that you have preserved to ascertain exactly what you have and to assure yourself that these will not be destroyed.

The next thing you should do is immediately notify your insurance broker. Your insurance carrier has a contractual obligation to provide you with a defense at the insurer's expense for fees and costs incurred in defending the litigation, as well as to indemnify you, up to the policy limits, for any damages awarded due to your professional negligence. Therefore, you must put the carrier on notice as soon as possible so as to preserve your policy rights. The best way to do this, obviously, is a telephone call followed by a letter enclosing a copy of the pleading and instructing your broker to so notify your carrier and request that the carrier accept your defense and appoint defense counsel.

Most insurance companies that provide errors and omissions coverage for design professionals are relatively sophisticated in their approach. As an extension of this, these insurance carriers use a select group of law firms who are knowledgeable and experienced in defending design professionals.

There are instances, however, where the insurance carrier, rightly or wrongly, determines that the allegations against the insured may not be covered by the policy itself. Under these circumstances, a carrier may send what is called a "reservation of rights letter." This letter will refer to the allegations in the complaint, note that your policy may not cover them, and reserve the insurer's rights to affirm or deny coverage at a later date.

Mr. Knutson, a partner with Fisher & Hurst, San Francisco, is an attorney who has participated in construction litigation including defense of municipalities and other commercial litigation.

One of the first steps in a lawsuit is the discovery process, which is essentially a search for the facts. It is undoubtedly the most expensive, most protracted, and most time consuming stage of the litigation process. Most jurisdictions have liberal discovery rules. What that means is that, if what is being asked for has any bearing on the lawsuit itself, then the court is more than likely going to require you to respond. The basic discovery tools that are available to counsel are depositions, interrogatories, and production of documents. Although there are others, these three forms of discovery are the most widely used, and you, as a defendant, will probably be involved in all three.

A deposition is basically an oral examination under oath, in question and answer form. It is recorded by a court reporter, and a transcript is generated and submitted to the deponent for his or her review and correction. Depositions can go on for any period of time imaginable. They can last an hour, or they can go on for days. Depositions are probably the best discovery device available to elicit directly from the witness exactly what his or her version is, and what he or she did or did not do.

An additional discovery device is interrogatories. These are written questions that are prepared by the attorneys. They are submitted to the opposing counsel, who in turn reviews them with the client and the attorney then prepares the answers from the information provided by the client. Generally speaking, interrogatories are best suited for gathering basic, general information. Unlike depositions, interrogatories are not designed to get to the heart of any issue in the lawsuit.

The final discovery tool is what is called a request for production of documents. This is a written request submitted by counsel to the parties in the lawsuit asking for copies and/or the right to inspect any and all of the relevant documents that may be involved. By way of example, the kinds of documents that can be discovered are plans, shop drawings, sketches, specifications, change orders, correspondence, notes, or any other written items, as well as tape recordings, videotapes, and the like, which pertain to and/or have some relevancy with respect to the issues involved in the lawsuit.

Finally, parties and their counsel are required to comply with reasonable discovery efforts, and the court is empowered to award sanctions, usually in the form of a monetary amount, against either the attorney or the party if the court finds that counsel or the party has not responded in a proper and reasonable manner.

An expert witness is a nonparty who is retained by the attorney to provide expert testimony with respect to the conduct of the party. Generally speaking, an expert witness has a special knowledge of the subject about which he or she is to testify, and is used to establish a standard of care and provide opinion testimony concerning whether or not the defendant's conduct met that standard.

Expert witnesses are a necessary element in construction litigation, particularly in litigation involving design professionals. It is the expert who defines the proper standard against which the design professional will be judged, and then provides opinion testimony on whether or not that standard was met. Needless to say, it is not unusual for experts testifying for each respective side to reach opposing conclusions based on the same set of facts. It is then up to the jury to decide which of the conflicting versions is correct.

As a practical matter, nine out of ten cases settle. In fact, there is a court-supervised settlement conference in just about every case. These are referred to in some jurisdictions as "mandatory

settlement conferences" and are held by the court. Sometimes they are productive and sometimes they are not. Virtually all such conferences require the attendance of a representative of the client or the client's insurance carrier. Further, if there is a consent clause in your errors and omissions policy, the carrier may expect you to attend such a conference.

Generally speaking, a consent clause gives you the right to agree, or not agree, to not only the settlement of the case but to the amount being offered. Again, you are advised to review your policy to determine whether or not you have this right.

Finally, for the sake of expedience toward resolution, please keep in mind that a case can settle at any point in the process, not just at the settlement conference.

Obviously, if the case does not settle, the matter will proceed to trial. Trial dates are set at court-ordered trial setting conferences. In this day and age, where the courts' calendars are quite congested, trial continuances occur frequently. The amount of time that it takes a matter to get to trial is largely dependent upon the state and county in which the suit is filed.

You obviously have a right to have your case tried by a jury or a judge. In the event that your matter does go to trial, your presence throughout the trial is a good idea. This way, you can try to make a favorable impression on the jury by demonstrating your competence and professional demeanor.

Needless to say, there are rights of appeal from the verdict and there is a whole posttrial and appellate process that is available to the parties. For purposes of this general discussion, it is sufficient to inform you that there is an appeal process available to you.

There are other procedures that are available in lieu of a trial. The most common are arbitration and the somewhat new concept of "alternative dispute resolution." Most construction contracts contain arbitration provisions.

Arbitration has a number of advantages over litigation. First of all, it is usually less expensive and considerably less time consuming. Second, you may be more likely to get a knowledgeable decision maker, and, generally speaking, the rules of evidence are not as stringent. A disadvantage would be that, if you agree to binding arbitration, then the right to appeal an adverse verdict or decision is not available to you.

Alternative dispute resolution, or ADR, is somewhat similar to arbitration, although conducted on a more informal basis. ADR is best defined as an attempt to resolve a dispute through the consensual use of the nonlitigation processes. These processes include mediation, neutral fact finding, third-party investigation and reports, minitrials, and retaining what is called a rent-a-judge.

For several reasons, disputes involving design professionals are well suited to the alternative dispute resolution concept. First, there are usually technical issues involved. By choosing a knowledgeable mediator, you have a better chance that the ultimate decision maker will understand the technicalities involved. Second, the ADR process provides for a much quicker decision, and in many jurisdictions the procedure does not require any public disclosure. In other words, there is no public record of the decision itself.

This general overview of the litigation process was intended to provide information regarding the litigation process and to help you either avoid litigation or protect yourself before you get involved. It is hoped that you will never have to experience litigation firsthand. However, being aware of the potential and anticipating the problems beforehand should benefit you in the long run. □

White hot home sales begin with a Thermador kitchen.



Simple. Elegant. Pure sophistication. White.

The contemporary color for the kitchen is

gracefully expressed in the White Collection

from Thermador. Clean lines and sleek,

tempered glass surfaces highlight this

complete appliance ensemble that fea-

tures our revolutionary Convection Micro-

Thermal Oven and high performance

Electric and Gas Cooktops. To make

your home sales white hot, install

The White Collection from Thermador.

For more information contact Thermador/Waste King 5119 District Blvd., Los Angeles, California 90040 213 562-1133 Dept. 67 ©Masco Building Products Corp. 1988

Thermador®

Circle 117 on information card

Sherwin-Williams introduces the cream of the crop.

Wouldn't a trimming of Creme make that elegant Peach color specification even richer? And isn't an Irish Cream soffit the perfect topping for a Peach Sorbet wall?

Ask Sherwin-Williams. About our new ColorAnswers system. And get tomorrow's color answers to today's design questions.

From Veronese Peach to Fresco Cream, ColorAnswers is over 800 of today's freshest colors.

Tinted neutrals. Clear pastels. Refined deeptones. The colors today's architects and designers are specifying.

ColorAnswers is more than just the newest colors from the leader in the paint industry. It's a compact, convenient, and easy-to-use system.

Just select your color from the fan deck. Note the color's name and number. Find that color on the tab dividers in the color case. Then just pull

out the swatch—a large, easy-to-work-with, $3\frac{5}{8}'' \times 4\frac{1}{4}''$ sample that works for everything from pencil concepts to final elevations and paint color specifications.

Call now for more information on Sherwin-Williams ColorAnswers. 1-800-321-8194. (In Ohio, 1-800-362-0903.)



Architects Apart from Architecture

Eight who pursue alternative careers. By Elena Marcheso Moreno

Having attended a college that has a reputation for graduating technically competent professionals, it was not unusual for me to observe fellow students putting in long and arduous hours studying a number of particularly difficult subjects. But those time commitments seemed to pale in the light that shone night after night from the top of the Green Building, where the architecture department housed its design studios. What was it about creativity that demanded such hell-bent activity?

After subjecting themselves to this rigorous training, why do some architects—who love buildings, who are creative, and who are technically competent—decide to leave the traditional practice of the profession?

The answers are somewhat surprising. Many former architects still work in allied fields in the building industry, others choose creative activities, and still others find they have an affinity for technology. They are practicing in careers that by most accounts are outside the commonly accepted, narrow definition of architecture. But it seems that the great majority of these professionals who are pursuing alternative careers feel that their work is not really so far removed from architecture.

In the past, the only recognized career for a graduate of an architecture school was in private architectural practice and more particularly in building design. *The Architect's Handbook of Professional Practice*, published by AIA, describes the situation matter-of-factly: "[As the student progressed] through undergraduate school, architectural design was considered the only path to follow. Many students had talents that were elsewhere, although still within the realm of architecture But these were not encouraged. If one could not design, one did not have a place in architecture. Even though a student may have had an exceptional skill such as graphics, mathematical analysis, conceptual planning, building construction, etc., it didn't make any difference. As a result, many promising professionals were discouraged."

Now, as we approach the end of the 1980s, the situation is changing somewhat. Nondesign skills such as management are valued in offices. And architectural training is paving the way for a number of employment opportunities apart from practice. We asked eight individuals trained as architects but not in private practice to discuss their career paths. All but one have been or are now licensed.

"I always thought I would get into management," says Donald Walters, AIA, head of a facilities planning, design, and management group for Southwestern Bell. "Design was never my strong suit, and I realized it." In addition to managing the corporate headquarters facilities in downtown St. Louis, Walters and his department oversee the design and construction of new corporate headquarters buildings throughout the Southwestern Bell territory. They provide the liaison between consulting architects and the client. Along with in-house space planning, Walters' staff architects coordinate the design work of consulting architects, acting as the client's representative. The important point is that Walters and his clients work for the same company and their objectives must be the same—efficient use of corporate resources.

Working for a large corporation can be appealing for a number of reasons, says Walters. Right away, the corporate architect has the opportunity to work with clients, participate in contract negotiations, oversee preparation of construction documents, and manage project construction. In private practice, an architect could be well on his or her way to becoming a principal before he or she is likely to have that kind of experience.

As a project manager with one of the largest construction management firms in the country, Bill Fisher, AIA, may not be a designer, but he is intimately involved with buildings. A member of the Washington, D.C., office of Lehrer McGovern Bovis, Fisher, like Walters, represents the owner, but under contract rather than on staff. His responsibilities are similar to Walters'.

"I am in a unique position," says Fisher, "As the owner's representative I have carte blanche on design decisions and to a very large degree on monetary decisions." Technically speaking, the contract is between the architect and the owner, but, for example, on the \$5 million renovation of the Farragut Park Building in Washington, D.C., the owner has turned over many design and construction decisions to Fisher.

The reasons for Fisher's career switch are quite simple. "I wanted more hands-on experience and an involvement in seeing a design through its actual construction," he says. His new job has been an eye-opener. As an architect, he has always been interested in the design intent and how a building is going to look. Now, however, he is confronted with contractors who tell him that some favorite detail is not going to work. Fisher said his first inkling that "God was in the details" came while he was renovating a house as a student. "Architects should be required to work on a job site, if only for a short while, just to see how things are built and to understand that where they draw a line really matters," he says.

Work with government or a public organization can often provide architects with opportunities in allied careers at the municipal, state, or federal level. According to AIA, more than 2,000 of its members work in government. James Binkley, AIA, manager of building technology for the U.S. Postal Service, is able to participate in developing public policy planning for design and construction and can see the results of his contributions in buildings around the country. His main role, however, is to seek out innovation in the design and construction of postal facilities with the ultimate goal of producing more efficient and profitable facilities. Although he has worked for private architecture firms in the past, Binkley is not a designer. Instead he works to integrate cost-effective technology and research into Postal Service buildings, such as through the Postal Service's aggressive program to make all of its structures energy-efficient. Most government architects work closely with private industry, as Binkley and his staff recently did to develop daylighting design guidelines with post-office-specific nomographs and two experimental postal "stores of the future."

Binkley works often with new building technologies, but with

great care and with more support than an architect in private practice would have. In the public sector, there is the opportunity to look at the costs and benefits of a new approach to design or construction across a very large base of buildings and to implement new techniques ahead of the marketplace. Binkley thinks an architect in private practice working on one building at a time wouldn't have the time or the resources to do that.

A number of architects find themselves in careers where they are providing services to designers as consultants or suppliers. Gregg LaPort, who is now the director of marketing for Versacad, practiced architecture for only a short period of time. He is responsible for CADD product planning, packaging, and promotion. He searches to find the right software for architectural designers and targets it and its future enhancements to that market. "My job has just as much creativity as design—it is just channeled in a different direction," says LaPort.

"I would not consider myself a prime example of ever being totally in love with architecture," he says. Before marketing CADD software, LaPort was representing artists and sculptors to architects in an effort to place their works in building projects.

"The important issues of design did not appeal to me as much

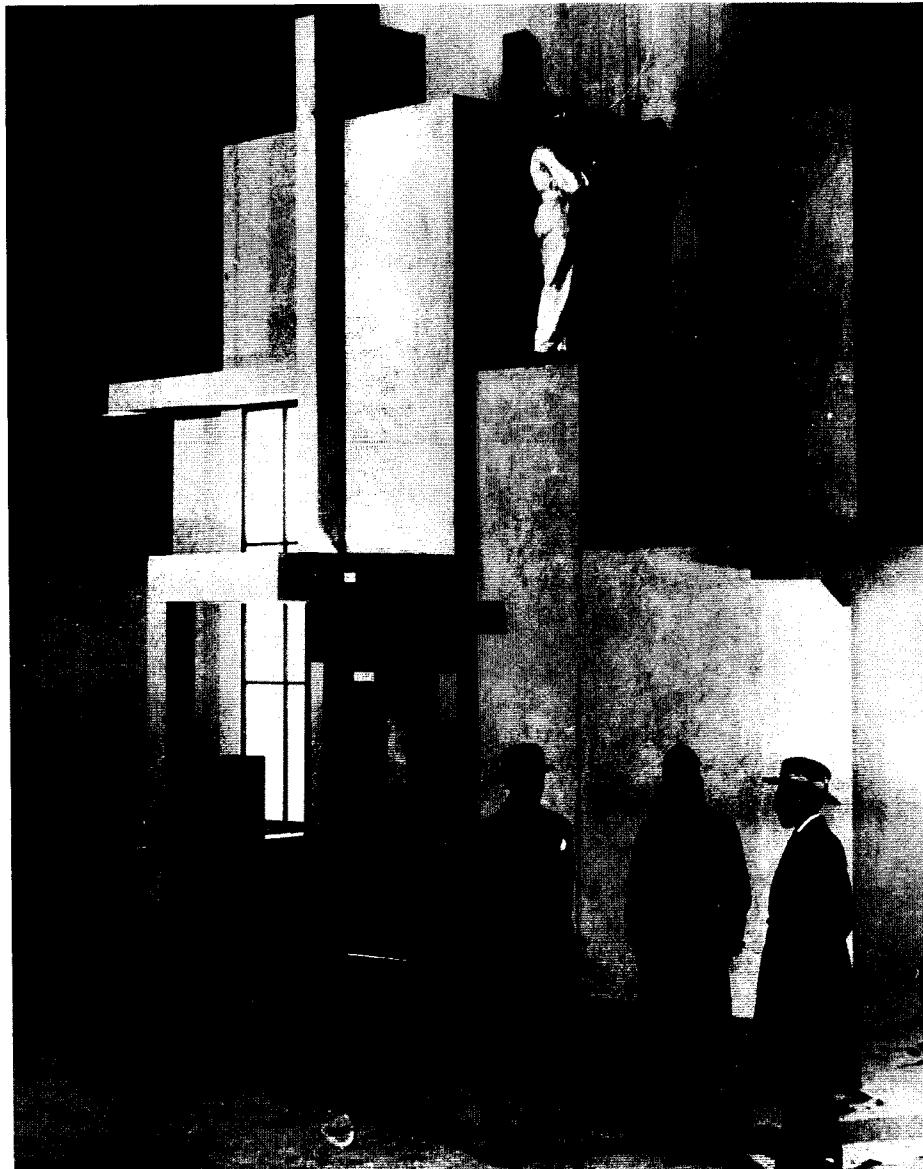
as the function," says Carl Rosenberg, AIA, an acoustical consultant with BBN Laboratories in Cambridge, Mass. "I've always had a great interest in music and the technical aspects of how sounds are made." It was that interest that led him to study acoustics as a graduate student at MIT. Despite the fact that he does not design entire buildings, design is very much a part of his work. "My contributions are not just a methodical process," he says. Ninety percent of his clients are architects, and Rosenberg helps them to develop form, select materials, and detail suitable construction to block or transmit sound.

Because he has been photographing buildings for more than 20 years, Richard Payne says that by now he is sure he is a photographer, but he still thinks of himself as an architect. "The great thing about photography," says Payne, "is that it is never boring. I enjoy it all." He also travels a lot and says this allows him to experience many more buildings than he would if he were designing them.

Photography was a hobby Payne began to pursue while in the service in Europe. He worked for CRS in Dallas as a project architect for a few years and then started photographing all of the firm's buildings. From there the hobby evolved into a full-



Attraction to art pulls a number of architects away from the building industry. Above, a library ladder by furniture designer Charles Webb is a piece that hints at his architectural training. Right, the library in the film 'L'Inhumaine' is a classic example of the sets that Donald Albrecht found introduced the public to modern architecture. Facing page, lyrical abstraction painted by artist/architect James Hilleary.



time career and he went out on his own.

Architectural photography is not an art, says Payne, and it should not be interpretive. The photographer's job is to find the beautiful and sculptural aspects of a building and to portray those, not to interfere with the finished product. "Thank goodness," says Payne, "or what was presented would be limited by the photographer's own natural ability." To be successful, he believes, an architectural photographer cannot have a style—trying to make a high-rise building and a strip shopping center conform to one style does not work.

Payne finds that most architects are interested in photography, and for some it can be a way to live in architecture. He considers himself to be involved in architecture 100 percent of the time.

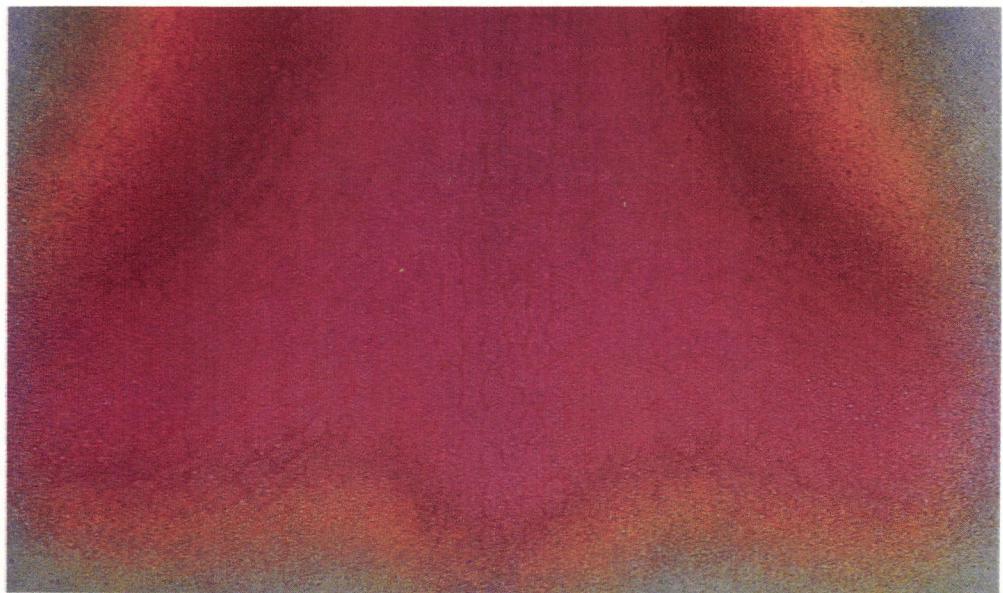
After working for four years for an architecture firm, Charles Webb decided to open his own furniture design business. Furniture design is less complicated than building design, says Webb, but as in architecture the approach is one of problem solving. Studying architecture, though, was not time lost. Webb says his training was the greatest single factor that has influenced his designs—the approach, the esthetics, and the structure.

Donald Albrecht is the curator of production design at the American Museum of the Moving Image in New York City, which opened its doors for the first time last May. At the museum, he studies the esthetic and social aspects of architecture to understand how they are absorbed by the population in terms of its material culture.

The turning point came for Albrecht when he met the late Ludwig Glaeser, who at the time was curator of architecture and design at the Museum of Modern Art. It was due to Glaeser that Albrecht began to study modern architecture as compared with the images presented on film.

Albrecht also is author of the book *Designing Dreams*, in which he looks at how set designers used "the architectural language of modernism to extend and enrich movie decor." He writes, "As well as the great stars of the 1920s and the 1930s, filmgoers recall most vividly and fondly these movies' beautiful decor—astonishing nightclubs that provided the setting for Astaire and Rogers numbers, luxurious penthouses where languid vamps lay in wait for their suitors, splendid skyscrapers that epitomized the glamour of urban life. These extraordinary sets were in fact not only immediately striking examples of design but also the earliest introduction most people had to radically new styles of modern architecture . . . the pioneering work of architects like Frank Lloyd Wright, Mies van der Rohe, and Le Corbusier became accessible to the public through the perfectly suited medium of the movies."

James Hilleary, AIA, paints lyrical abstractions but still devotes some time to practicing architecture. An artist of the "Washington color school," he says being an architect has greatly influenced his painting. Painting provides him a freedom of execution that is not possible in architecture, he says, although critics have said that the structure of his training shines through. But art, like architecture, is a difficult field to become established in and to find work in at an age when you have the greatest enthusiasm and energy for it, Hilleary contends.



Personal satisfaction seems to run high in alternative careers, but how is the pay? Remuneration has been a driving force behind some architects' decisions to pursue alternative careers. Corporate architects right out of school start at salaries of \$28,000 or more, with additional benefits equal to another third of that salary, according to Walters. That is often hard to turn down, he says, and the pay increases that go along with increased managerial responsibilities keep the corporate architect's salary substantially above those in private practice. Construction management also tends to be more lucrative than traditional architecture and, according to Fisher, midlevel project managers make at least as much as the principals of most design firms. Government is yet another field where architects can expect to earn more than in private practice.

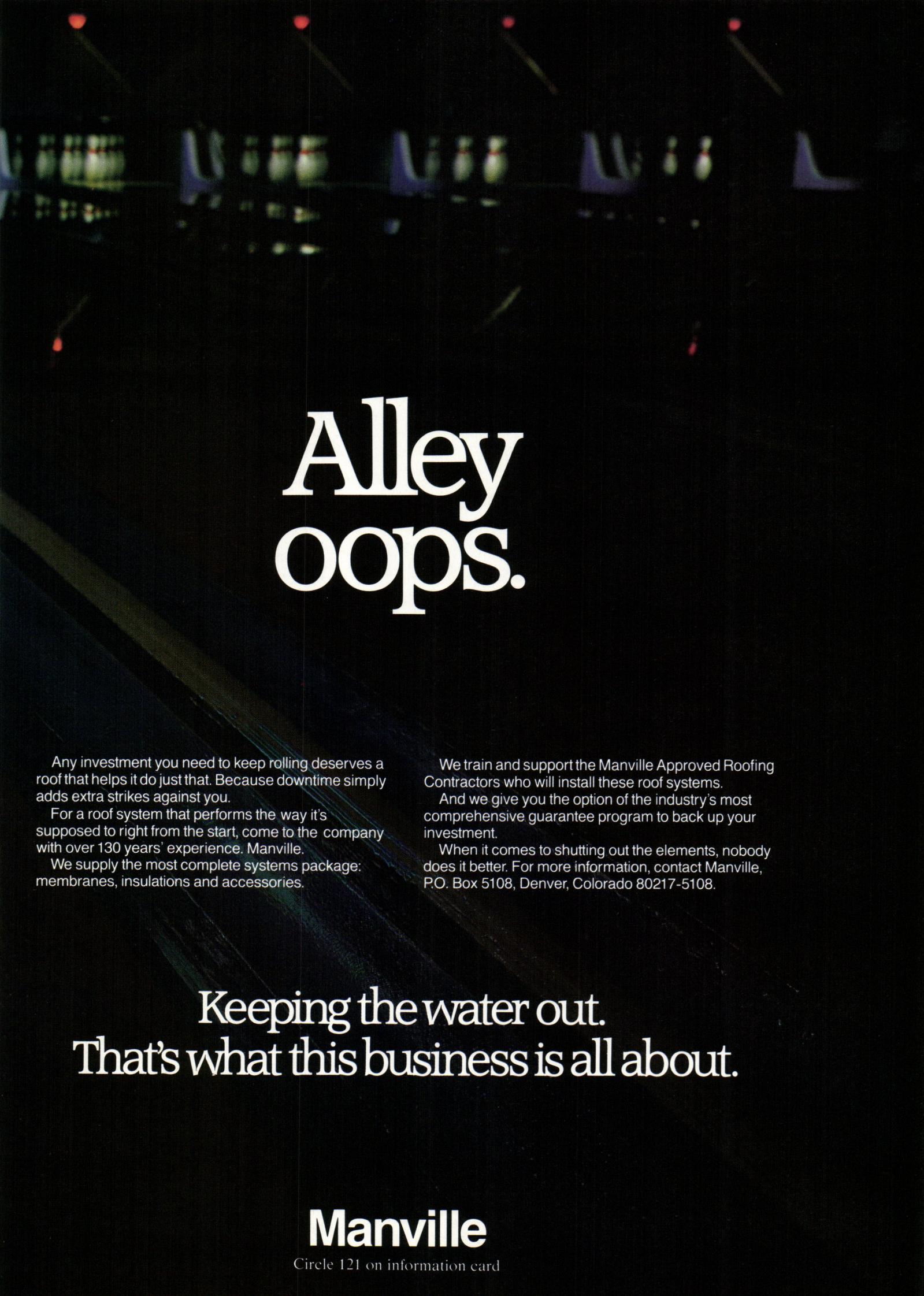
Payne makes a good living, he says, but architectural photographers are never rich. He does what he does because he loves it. At a current show of Hilleary's art in Washington's Susan Conway Carroll's Gallery, paintings are selling for \$4,000 and up, but even so, says Hilleary, only the most successful artists make money.

Should the young architect considering pursuit of an alternative career also pursue registration? Most of these practitioners feel it is probably a good idea to get a license. Walters will not hire a professional unless the individual has a license or is planning to obtain one. "It gives me more credibility," says Fisher, but it is important to understand when to wear your architect hat and when to take it off. Being an architect gives Payne an advantage when he photographs a building, but architectural training without a license would probably be sufficient for him.

Do these alternative practitioners miss architectural design? With the exception of Fisher, none of these architects working in allied professions said he did; they all felt they were as close as they needed to be to the process for their own personal satisfaction.

If the truth be known, close to half of the graduates of architecture schools choose other avenues. Information is scarce, but the statistics that are available come from the Association of Student Chapters/AIA and indicate that more than 40 percent of these graduates are in occupations only related to architecture and another 7 percent have moved completely outside the field. □





Alley oops.

Any investment you need to keep rolling deserves a roof that helps it do just that. Because downtime simply adds extra strikes against you.

For a roof system that performs the way it's supposed to right from the start, come to the company with over 130 years' experience. Manville.

We supply the most complete systems package: membranes, insulations and accessories.

We train and support the Manville Approved Roofing Contractors who will install these roof systems.

And we give you the option of the industry's most comprehensive guarantee program to back up your investment.

When it comes to shutting out the elements, nobody does it better. For more information, contact Manville, P.O. Box 5108, Denver, Colorado 80217-5108.

Keeping the water out. That's what this business is all about.

Manville

Circle 121 on information card

I knew
I should have
specified Sloan
the first time.



He thought he was finished with this job. But the non-Sloan flush valves he originally specified didn't work right. They kept pulling loose at the stop and wouldn't stay in adjustment. They leaked at the handle, at the main seal, and they were impossible to regulate.

It's true he saved the building owner a few dollars on the substitute valves. But that really doesn't mean much now. All of the valves have to be replaced, and he's right back where he started. With one important exception, of course.

This time he specified Sloan flushometers, what he should have done in the first place. Unlike substitute valves, Sloan flushometers are built to last. And last.

In fact, today an increasing number of buildings equipped with substitute products are being refitted with Sloan flushometers. Because Sloan's rugged, tamper-proof flush valve design assures quiet,

dependable operation. Consistently. And with only minimal, routine maintenance, Sloan flushometers provide efficient service for years—an important consideration.

Because unless a flush valve says "Sloan," there's no telling how much time or money it will take to get the job done right. So why take a gamble on look-alike products? Put the odds in your favor, and specify Sloan. The first time.



SLOAN VALVE COMPANY

10500 Seymour Avenue, Franklin Park, IL 60131

A Tradition of Quality and Pride

Circle 123 on information card

Detailing, Specifying Insulation

What could be easier than insulating a house? Specify that the contractor fill the space between studs with six-inch-thick, glass fiber batts, put a vapor barrier on the warm side, and let the contractor take it from there. That is an opinion held by many architects and, apparently, most builders. The unfortunate result is unwanted air and moisture movement. Even though house construction is the realm of the builder, by careful detailing and specification the designer can control a significant amount of the heat and moisture that otherwise would slip through the cracks.

By effectively insulating and sealing with a vapor barrier the floors, basements, envelope walls, and attic spaces, the architect significantly decreases the number of air changes per hour and the energy needed to heat or cool even a conventional house. But this requires careful detailing and, where practical, construction supervision.

Insulation

Detailing depends on the type of insulation specified, and this article is concerned with glass fiber batts for walls and ceilings and rigid polystyrene for below-grade and attic installations.

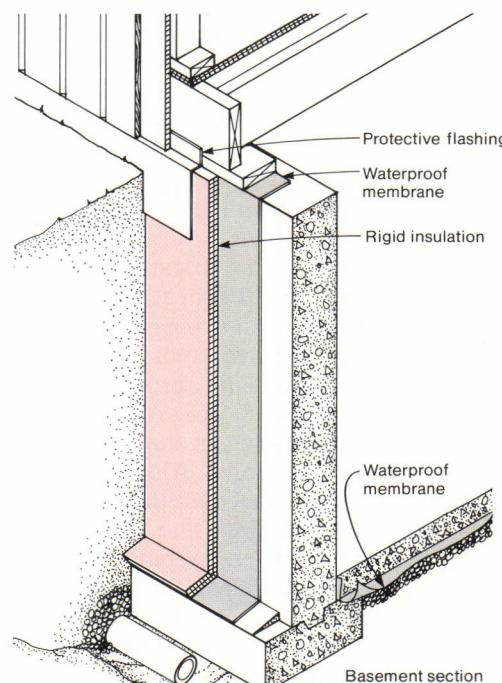
For foundation walls, it is generally better practice to insulate on the outside than the inside. Exterior rigid insulation, such as polystyrene board, protects the damp-proofing during the backfilling operation, provides a second barrier against water leakage, and protects concrete foundations from the stress of freeze/thaw cycles. The rigid insulation itself needs protection from impact damage, as well as from exposure to sunlight. A coating of wire mesh and parging or pressure-treated plywood will protect the insulation from impact damage below grade and from sunlight degradation above grade. If a covering material is selected for above-grade protection only, it should extend at least a foot below grade.

When a situation requires interior application of below-grade insulation on concrete, keep in mind that insulation placement should be delayed until the concrete is completely cured—usually about six months after it is poured. Otherwise, moisture from the concrete wall may be

trapped behind the air/vapor barrier and can cause damage to the furring, studs, and particularly to the sill plate. In crawl spaces, the insulation is best installed between the floor joists.

Compared with basements and crawl spaces, monolithic slab-on-grade foundations are easy to insulate, requiring a continuous sheathing of rigid insulation between foundation wall and slab and horizontally beneath the slab. For attic installations, put aside the common misconception that warm air rises. A better image is that the warm air is displaced—forced upward—by cold air infiltrating at lower levels and creating a stack effect. Correctly installed attic insulation slows the stack effect. Two layers of batt insulation overlapping each other, both horizontally and vertically, will reduce the chance of warm air being pushed through gaps between batts. The first layer should be installed between the ceiling joists and flush with their top to provide a level surface on which workers can lay the second layer at 90 degrees.

The first layer of batts may have to be stapled into place to be flush with the top of the joists; this creates an air space between the top of the ceiling and the bottom of the batts. The air space isn't a



problem except over the top plate of the exterior wall. Here, the architect should specify that the contractor cut and fit small sections of insulation between the plate and the batts.

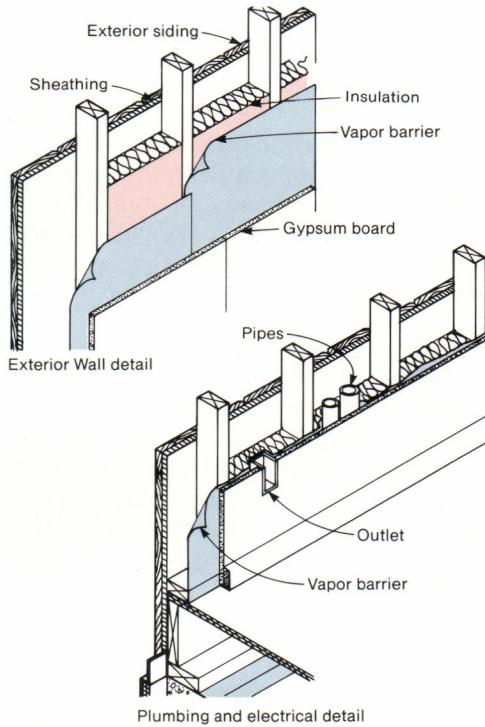
The outer perimeter, where the roof joists meet the top plate of the exterior wall, can be a major source of heat loss. The roof should be designed with a steep slope or a raised heel to allow an adequate amount of insulation over the top of the wall.

Attic access through a ceiling trap door can create another potential heat bridge. Sealing gaskets around trap-door edges and gluing rigid insulation to the attic side of the door will prevent leakage. An even better solution, if feasible, is to design access from the outside through an end gable to preserve the integrity of the insulation and vapor barrier.

The vapor barrier

Once insulation is in place, the next step is to install the vapor barrier. A faulty vapor barrier that traps moisture where it can cause structural damage is often worse than no vapor barrier at all. Water vapor is a gas, not a liquid. This is important to remember because some waterproofing materials repel water but are permeable to water vapor. Water vapor always travels from highest pressure to lowest pressure. Since vapor pressure is a function of temperature, warm interiors, even though they have a lower moisture vapor content than exteriors, often have greater vapor pressure than cool exteriors—hence, the rule of thumb that the vapor barrier goes on the warm side of the wall. Vapor barriers may be placed between layers of insulation as long as the one-third/two-thirds rule is applied. Generally, as long as a minimum of two-thirds of the insulating value of the wall is on the cold side of the vapor barrier, air on the warm side won't cool to the dew point and cause condensation in the wall.

Since all vapor barriers are permeable to some extent, they can't stop all vapor transmission but can only control the rate. Permeance of a material is a function of the rate of vapor transmission through it multiplied by its thickness. Permeance is measured in perms. For example, consider a vapor barrier material with a rating of one perm. When separating two areas with different levels of vapor pressure, this material will allow the passage of one grain of water per square foot per unit of vapor pressure differential. An adequate vapor



barrier must have a perm rating of 1.0 or less.

Several materials can be used as vapor barriers. Some rigid insulation board comes with an integral vapor-barrier covering. A problem with these vapor-barrier/insulation boards is their inflexibility. The most flexible vapor-barrier material with the best perm rating for the money is polyethylene film. Its one drawback is the ease with which it is damaged.

In an attempt to overcome the uncertainty of quality of field labor, specification of a vapor barrier should go beyond the material to cover also installation requirements. Typically installed just beneath the interior wall finish, the vapor barrier is often punctured either deliberately, for outlets and plumbing, or by accident during the normal course of construction. So it's easy to see why actual performance often differs from designed performance.

Critical details for vapor barriers, during both design and construction, are joints between individual sheets of vapor barrier material, corners, electrical and plumbing penetrations, and door and window openings.

Joints between individual sheets of polyethylene are best made where there's a stud backing. The architect can control infiltration between sheets of vapor barrier by specifying that sheet ends overlap by at least one stud and that workers apply a continuous bead of flexible caulk.

between the two. The second sheet may then be stapled in place over the first. The caulk should be considered an adhesive to hold the two sheets in place.

In exterior walls, the stud space around electrical outlet boxes should be blocked out and then sealed with a vapor barrier material that is installed with a good deal of slack. The slack in the vapor barrier allows the outlet box to lie flush with the stud without ripping the vapor barrier sheet. Caulking will have to be applied to the wiring that penetrates the sheet.

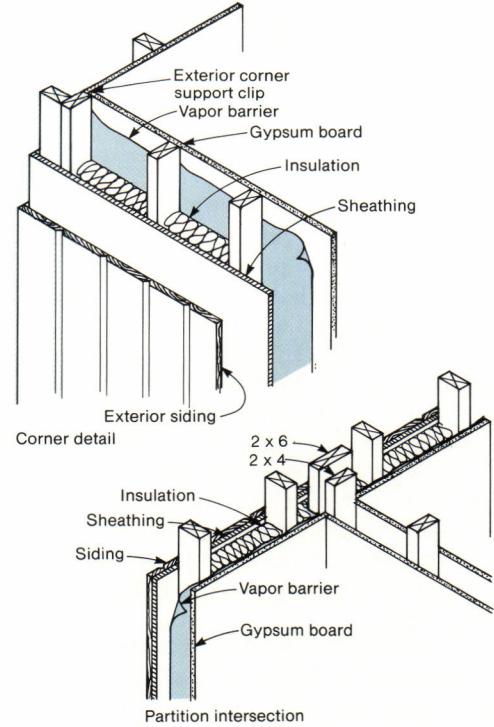
The two areas of concern for installing the ceiling vapor barrier are plumbing and mechanical penetrations and the connection between the ceiling and interior partitions. The plumbing and mechanical penetrations can be handled much like outlet boxes: box them out, apply extra sheets of vapor barrier material, and carefully caulk them. Interior partitions require the contractor to sandwich a length of vapor barrier between the double top plate of the partition, allowing enough to hang over each side. This connector strip is then caulked to the ceiling vapor barrier. The ceiling and exterior wall vapor barriers also are best overlapped and caulked.

Breathability

Good insulation and vapor protection shouldn't prevent proper airflow, or breathability, within a building. If a wood structure isn't properly ventilated, moisture and warm air can be trapped and eventually structural members become saturated. The combination of water and warm air is an excellent environment for rot spores and insects.

Crawl spaces in particular require good ventilation, and local codes usually set the size, number, and location based on square footage. All crawl space vents should be supplied with dampers that can be closed in the winter.

Exterior walls need to breathe and expel internal moisture. Most sheathing materials, such as felt building paper, fiberboard, and CDX plywood, are vapor permeable, as are most exterior siding products, such as brick and wood clapboard. Non-permeable siding, such as aluminum or vinyl, needs to be vented. Also, be careful when using foil-faced urethane insulating boards as sheathing. The foil acts as a second vapor barrier, trapping the moisture in the wall. A simple way to prevent this is to make sure the crew doesn't seal the joints between the boards. Specify only exterior sheathing or siding products that



are vapor permeable, and, if in doubt, vent the top of each wall cavity.

Attic spaces receive the direct impact of solar heat, which would be good to transfer to the living areas in cold weather or vent to the outside when the weather is hot. Good attic ventilation is important for longevity of the roof structure as well as for cooling. Any moisture from the living areas that gets past the ceiling vapor barrier is likely to condense in the roof structure and cause moisture damage.

The U.S. Department of Housing and Urban Development's *Minimum Property Standards* recommends one square foot of vent area per 300 square feet of ceiling where a vapor barrier has been installed, and one square foot of vent area where no vapor barrier has been installed. Gable louvers or soffit vents, alone or in combination, are inadequate to vent attic spaces. Because of their size and location relative to the prevailing wind directions, these vent systems don't provide a uniform airflow, and they create dead-air spaces. The best system is a combination of continuous soffits and a ridge vent. The net free area of both should be equal for optimum performance. Convective flow of air up through the ridge vent creates negative pressure near the peak of the roof that draws cooler air into the attic space through the soffit vents. This system, unlike the others, works even when there is no detectable air movement outside.

—TIMOTHY B. McDONALD

SINGLE PLY ROOFING SYSTEMS.

Component compatibility.
Performance depends on it.

Single-ply roofing consists of more than a single ply of membrane protection. There is a whole system of components and accessories that must fit together perfectly for overall roofing performance.

Insulation. Flashing. Adhesive and caulk. Anchor bars and fasteners, fascia systems and drains.

Each is critical to the performance of a single-ply roof. And they're all available from one manufacturer. So you can expect the same level of performance with the most comprehensive systems guarantee program in the industry.

For over 130 years we've been advancing the principles of good roofing, for systems that assure protection. For more information on our roofing systems, see your Manville sales representative or contact the Manville Product Information Center, P.O. Box 5108, Denver, Colorado 80217-5108. (303) 978-4900.

Circle 125 on information card

Manville
Total
Roofing Systems

THEIR IMAGINATIONS

Presenting
the Winners of the

PC GLASS BLOCK

Architectural Design Competition

From the United States, Canada and Puerto Rico we received hundreds of entries to our first Architectural Design Awards Competition! From architects . . . interior designers . . . and students of both fields.

They submitted entries for existing structures . . . those being planned or under construction . . . and designs that were purely conceptual.

The competition was fierce, but our judges—all acclaimed professionals from leading architectural firms, as well as a major architectural school—have made their decisions and awards have been presented.

The Jurors

James Ingo Freed, FAIA
I. M. Pei & Partners

Thom Mayne, Principal
Morphosis

Terrance Sargent, AIA
Lord & Sargent Architecture

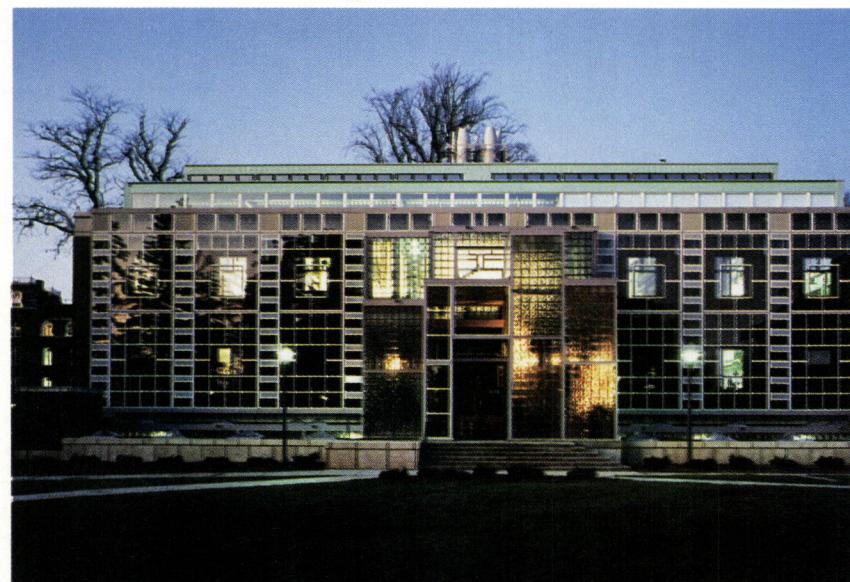
Craig Taylor, AIA
Skidmore, Owings & Merrill
Stanley Tigerman, FAIA
School of Architecture
University of Illinois at Chicago

Each design seen here represents a superior, creative and unique application. And each of these projects used or called for PC GlassBlock®, the sole American-made glass block.

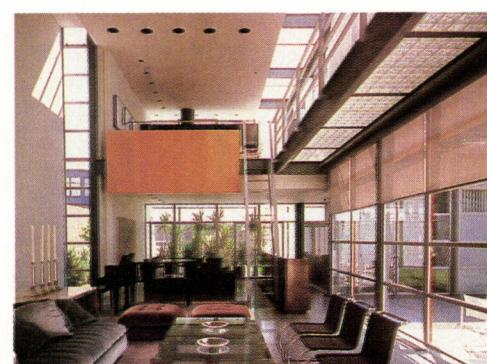
For your next glass block design, choose the best: PC GlassBlock®. These winners did!

For information, call our Architectural Products Hotline at 800-992-5769. Or write Pittsburgh Corning Corporation, Marketing Department AGB-8, 800 Presque Isle Drive, Pittsburgh, PA 15239. In Canada, 106-6 Lansing Square, Willowdale, Ontario M2J 1T5, Tel: (416) 222-8084.

Category 1 Completed/Existing



FIRST PRIZE (Above)
Perry, Dean, Rogers & Partners
Project: Vassar College, Seeley G. Mudd
Chemistry Building, Poughkeepsie, New York



SECOND PRIZE (Above and left)
Krueck & Olsen Architects
Project: Steel and Glass House,
Chicago, Illinois

HONORABLE MENTIONS

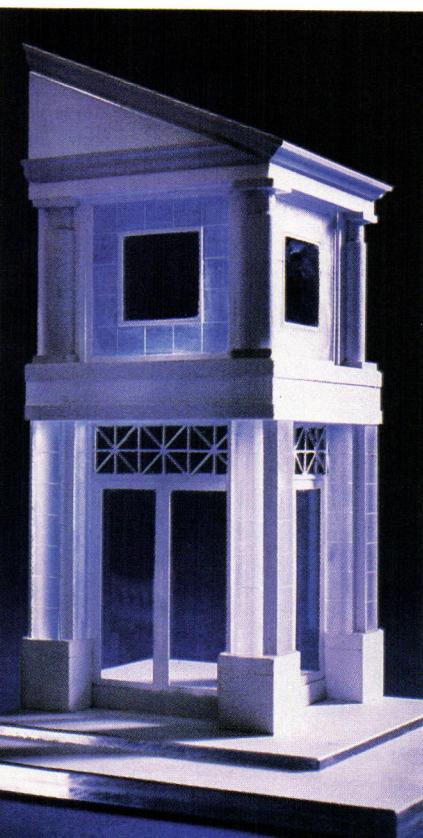
(Not shown)
EDAW, Inc.
Project: Lathouse at Central Park —
Dulles Corner, Herndon, Virginia
Leers, Weinzapfel Associates,
Architects Inc./
Alex Krieger Associated Architects
Project: Photographic Resource Center
at Boston University,
Boston, Massachusetts

HAVE SOARED!

Category 2 Planned/Pending/In-Works



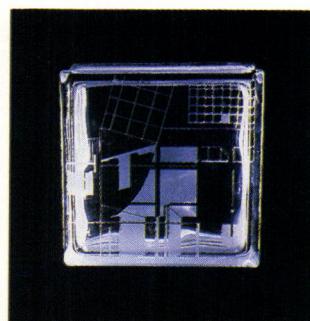
FIRST PRIZE
(Above)
George E. Brewer
Project: Coral Cabana
(a vacation home)
Eleuthera, Bahamas



SECOND PRIZE
(Left and below)
Shope Reno Wharton
Associates
Project:
Shope Residence,
Westport,
Connecticut



Category 3 Conceptual



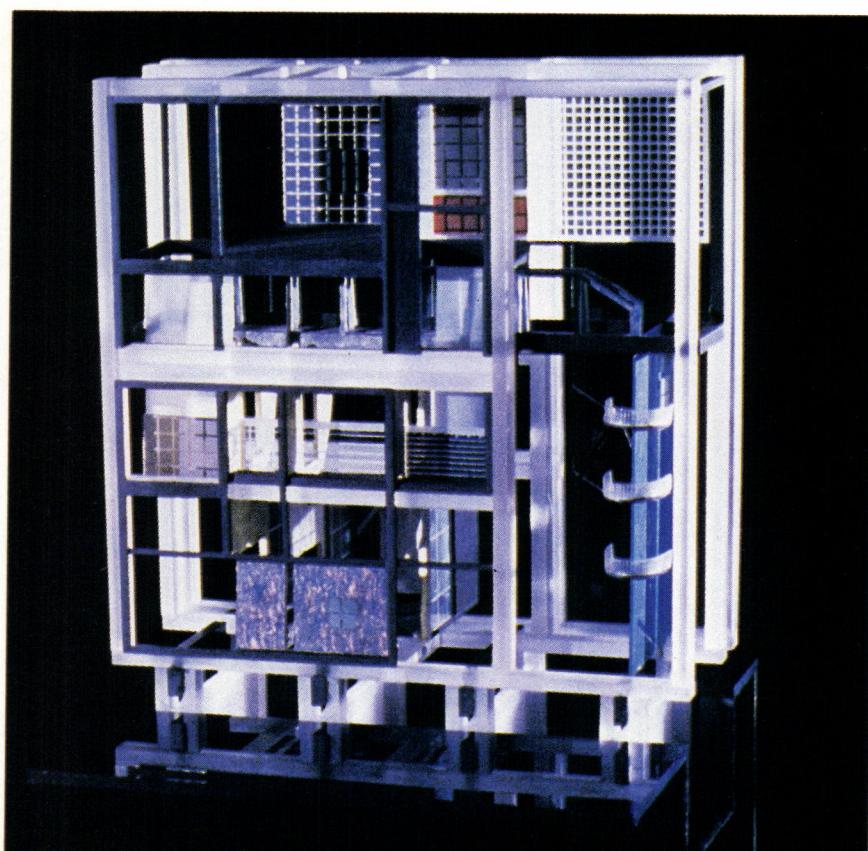
THE INHABITED WALL

FIRST PRIZE (Left and below)
Studio "411"
University of Texas at Arlington
School of Architecture
Project: "The Inhabited Wall"

HONORABLE MENTIONS (Not shown)
Craig D. Newick/Linda Lindroth, Collaborators
Project: Camera Obscura:
The Camera as Physical Space

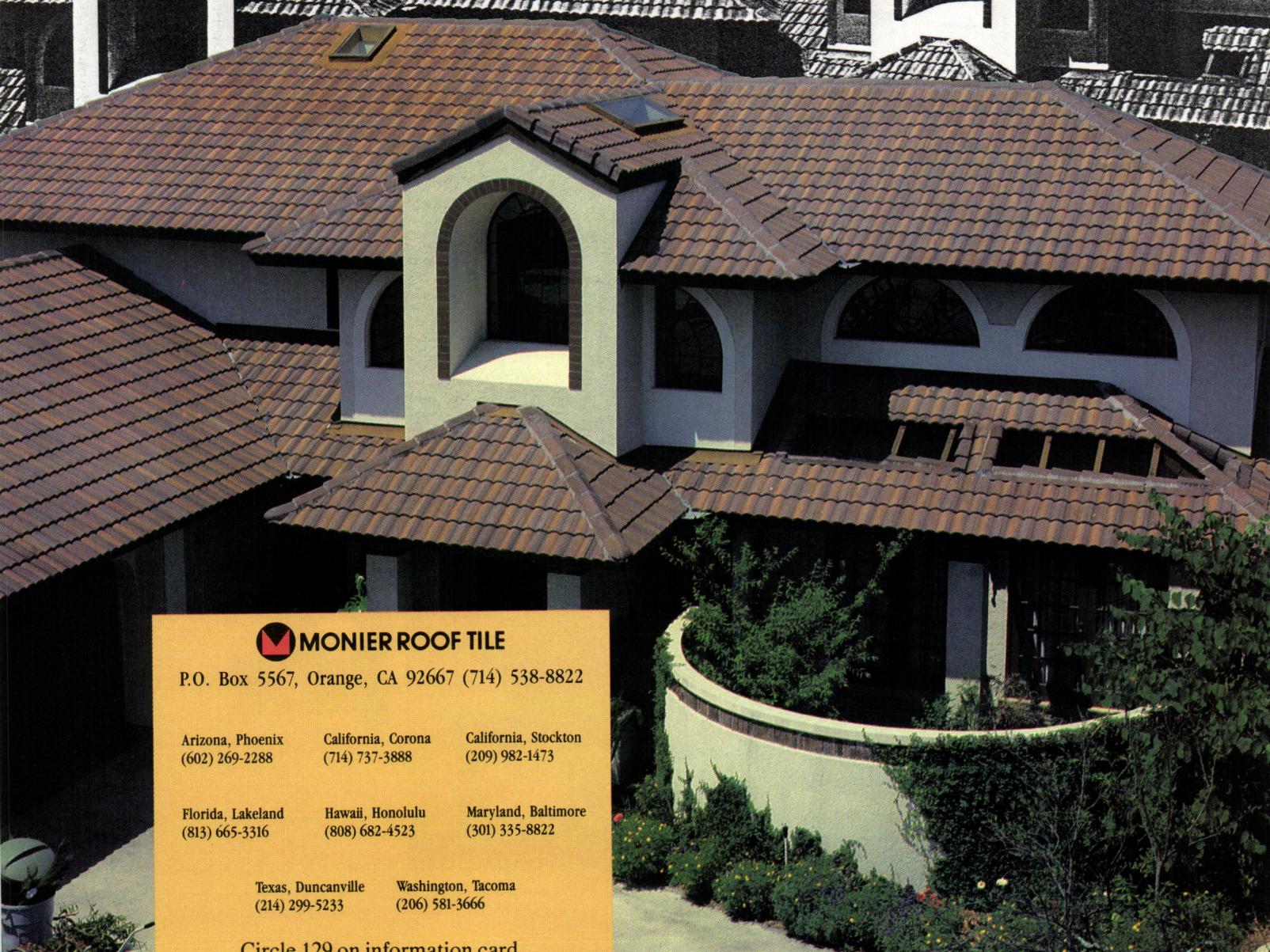
James Carpenter Design Associates, Inc.
Project: Transparent (Luminous) Bridge

Douglas Oliver
Project: "A Study in Facades"



PITTSBURGH
pc[®]
CORNING

Circle 127 on information card



You Lead...They Follow

Looking for the competitive edge? Seeking increased curb appeal that moves you ahead of the crowd and adds to your bottom line? Then think about MONIER ROOF TILE.

For over half a century MONIER has specialized in creating innovative roofing products that add distinctive individuality in a development world populated by clones.

You can choose our Signature Series to provide your projects with a color-blended personality all their own. Architects can now specify Styleline to add that touch of "softness" to any roofline or use our Homestead tile to replace combustible wood shingles, without the loss of aesthetic value. The choices are endless!

Let MONIER ROOF TILE give you a head start. Call or write our nearest sales office for our colorful brochures on our full range of products.



MONIER ROOF TILE

The Leading Edge In Roof Tile

MONIER ROOF TILE

P.O. Box 5567, Orange, CA 92667 (714) 538-8822

Arizona, Phoenix
(602) 269-2288

California, Corona
(714) 737-3888

California, Stockton
(209) 982-1473

Florida, Lakeland
(813) 665-3316

Hawaii, Honolulu
(808) 682-4523

Maryland, Baltimore
(301) 335-8822

Texas, Duncanville
(214) 299-5233

Washington, Tacoma
(206) 581-3666

Circle 129 on information card

PRODUCTS

Innovative Kitchen Accessories For New and Old Installations

The most important and frequently renovated room in the house is the kitchen. Increasingly used as a control center for the household, today's kitchen serves as an entertainment center and a planning and activity area, as well as fulfilling its original function as the food preparation area. The kitchen must be highly functional and versatile to accommodate all household users, because many traditional family cooks have supplemented their kitchen work with jobs outside the household. The following products reflect these life style changes by providing ease of use and maintenance, and they are also attractive additions to one of the most popular rooms in the house.

Jenn-Air Co.'s Designer Line of kitchen appliances are black with subtle, functional color accents. Details are played up through the use of stripes, curves, color, and imaginative arrangement of functional features and graphics. Key functional appliance features are emphasized as design elements.

The Designer Line was designed to fit the dimensions of today's American homes, with appliances sized to mesh with standard cabinet measurements to replace existing appliances in kitchens being updated. A three-color injection molding process means that settings will not rub off. Color also is used to communicate information. The knobs are dishwasher safe. Other details of the appliances are powder finishes in subtle accent colors that replace chrome, and glass that resists high temperatures. Grill grates on grill-ranges and cooktops have beveled edges, a design that is repeated on the overhead air grills. A circle motif recurs in control knobs and door handle supports. The Designer Line includes several models of grill-range cooktops, grill-ranges, self-cleaning ovens, programmable microwave ovens and dishwashers, frost-free refrigerators, and compactors.

Monogram, the General Electric Co. line of built-in appliances aimed at the high-end custom kitchen remodeling market, has expanded its line of products to include an electronic down-draft modular

cooktop; a counter-deep, built-in refrigerator that dispenses chilled water and crushed or cubed ice; and gas-fueled cooktops. In addition, the Monogram line features single and double built-in wall ovens with electronic touch controls; a built-in, drawer-type compactor; and a kit for dishwasher panel trim assembly that eliminates the need for a frame border on the dishwasher's door and access panel. The entire Monogram line is available with either black or white graphics and accents.

Amana Refrigeration Inc. has a comprehensive kitchen planning guide detailing its entire line of microwave ovens, refrigerators, freezers, ranges, ovens, cooktops, dishwashers, and laundry equipment. The brochure includes a specification guide that lists each model's salient features.

The Relocatable portable kitchen, shipped completely assembled with refrigerator, microwave, and a self-contained water supply, is available from Dwyer Products Corp. No plumbing or special electrical hookup is needed, just a 20-amp, 115-volt electrical outlet. The Relocatable kitchen uses bottled water that is stored beneath the sink. The pump draws this water from the supply and dispenses it through the faucet. Wastewater drains into a plastic water container. The 78-inch-high Relocatable kitchen is available in 48- and 60-inch widths in white, almond, platinum, or black. The kitchen is on wheels, and the back of the unit has a textured-steel finish, so that it can be used as a room divider. Standard features include a porcelain sinktop with embossed drain board;

continued on page 144

Custom Cabinetry: Millbrook's Custom Kitchens' curvilinear systems (shown below), are detailed in a brochure listing the coordinated kitchen cabinets, hoods, trim pieces, and accessories that are designed or customized for the kitchen. Interior fittings solve storage and work-area problems.

Capri Custom Cabinetry introduces its Flow Line wood and laminate cabinets. The linen-textured premium laminate is from Formica, and the handles and accents are oak. The illusion of linear motion is created through Capri's full door width and through 1½-inch-wide oak handles that appear as a single rail around the perimeter of the kitchen. The new line is available in white, gray, and beige. The oak handles in hand-finished stains complement the laminate colors. Special wood accents are offered on drawer fronts, range hoods, and framed glass doors. Other colors are available on special order.

*Millbrook Custom Kitchens Circle 425 on information card
Capri Custom Cabinetry Circle 426 on information card*



Products from page 143

24-inch, built-in microwave; refrigerator with push-button defroster; an indicator light that shows when wastewater should be emptied; and an overload fuse. The unit can be modified at the factory to substitute a stainless steel sinktop or to add an ice maker or instant hot water dispenser.

Whirlpool Corp., which offers a full line of appliances for the house, has joined forces with the Alabama Power Co. (APC) in offering standard and specialty design appliances in six APC division offices for consumers with special needs. Standard-design Whirlpool products that are adapted to meet these needs include ranges with easily reached front-mounted controls; side-by-side refrigerators with narrow doors to enhance access to refrigerator and freezer compartments for users with wheelchairs, walkers, or crutches; under-counter dishwashers with pull-out racks for easy loading and unloading; and easy-to-reach detergent dispensers and silverware baskets, both mounted on the dishwasher door. These appliances accept Braille kits that modify control panels for vision-impaired users. Whirlpool executives anticipate that APC's pioneering program will provide impetus for other utility companies and independent appliance dealers to meet the special needs of older or disabled customers.

Jenn-Air Company

Circle 401 on information card

General Electric Company

Circle 402 on information card

Amana Refrigeration Inc.

Circle 403 on information card

Dwyer Products Corporation

Circle 404 on information card

Whirlpool Corporation

Circle 405 on information card

Faucets

The Chicago Faucet Co.'s Renaissance Collection of faucets (below) is offered in a wide variety of finishes including coated and uncoated polished brass, chrome-plated, hard gold, and a black finish. Handles are ceramic in the cross-handle design, are plain white or floral-decorated for the lever style, and are brass for the wing-type, four-inch lever models. Matching brass and ceramic escutcheons complement the handle designs. The Renaissance Collection features cobra head, spray, and high silhouette (gooseneck) swing spouts. All faucets use the manufacturer's Quaturn operating device, which moves from the

off position to full flow in one-quarter turn of a handle. The device closes with the pressure of water, instead of against it, for ease of operation. All moving parts are contained in one standard unit, and all valve cylinders are interchangeable.

Porcher's Ariane faucet with single-lever operation and hot/cold color coding was the winner of an all-France faucet design contest. Ariane is a chrome-plated brass faucet with a swivel spout and ceramic disk cartridge and single-lever black handle. It has a single-hole mount. The faucet adjusts in three settings and has a pullout spray integral in the spout. The kitchen faucet is available in chrome and four epoxy color accents designed to resist abrasion. All Porcher products are guaranteed to fit American plumbing systems.

Epic's kitchen Classics series has faucets that are hand-assembled and hand-tested and feature the Delta faucet ceramic valve, a sophisticated valve mechanism. The kitchen faucets are available with or without spray, in polished chrome, polished brass, or antique brass finishes.

Moen Group/Stanadyne announces two new colors of yellow and gray for its Kitchen Mate Casa line of single-handle high-arc swing-spout and single-handle faucets (shown below). The Euro-styled faucets are also available in chrome, red, white, and brown. All faucets come with a lifetime limited warranty against leaks and drips.

American Standard has expanded its Amarilis line of faucets. Also a part of American Standard's faucet lines are the existing Ultrafront, Lexington, Roma, and Ellisse lines. Handles and spouts in these designs are interchangeable with other Amarilis components and are available in chrome, polished brass, white, and bone. Five new colors have been added for the ceramic inserts that are used with Octagon handles. Amarilis has the same solid brass body and ceramic disc valving as all American Standard faucets.

Delta Faucet Co.'s NeoStyle faucets have an arched spout and cross-metal handles. Available in chrome and polished brass finishes with six different handle options, the NeoStyle line includes a kitchen faucet with or without spray, a 4-inch centerset lavatory, and an 8-inch widespread lavatory. All models feature a swivel spout. The NeoStyle line has solid brass construction and a washerless design.

Delta Faucet's Gourmet Spray faucet features a push-button control on the spout that transforms the flow of water from the standard aerated flow to a spray flow pattern. A five-foot-long retractable hose housed within the spout can be used for watering plants, cleaning fruits and vegetables, or for other household chores. A built-in vacuum breaker prevents backflow, eliminating water contamination. The Gourmet Spray is offered in three colors and has a two-year warranty.

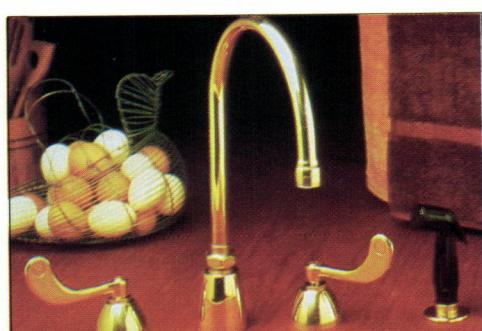
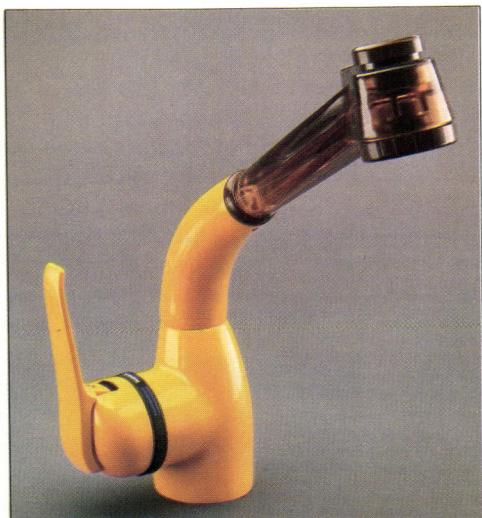
Elkay Manufacturing Co. introduces the Calais Collection of kitchen faucets in seven models, including both single-lever and two-handle faucets in chrome, almond, white, and black. A swivel high-arc swing spout spans a 135-degree range and offers a choice of stream or spray with automatic return to normal. A retractable pullout spray hose is plated in heavy-duty chrome. Designer handles on the Calais faucet are acrylic accented in black, and four escutcheons are available in matching colors.

Price Pfister has two catalogues, one detailing its entire line and the other presenting its Art Deco line of faucets. Faucets in the Society Finish Collection are made of solid brass, polished and then coated with a clear thermoset epoxy that is baked and chemically bound to the surface. Kitchen faucets are available with or without hose and spray, as single and two-handle washerless faucets, and with special housing for barrier-free access.

Rapetti's Diva collection of kitchen faucets features a single control mixer for the sink and a swivel spout with aerator. An extractable hand-shower has a flexible tube with reinforced fastening nearly five feet long. A push button on top of the spray head gives a shower spray. When the water is turned off the push button automatically returns to the flow position.

Automatic Faucet Corp. introduces the Wellcome "no touch" water-sensing faucet, which uses infrared sensor technology, operating only when hands or other objects

continued on page 145



Products from page 144

are placed under the spout. The solid brass body is chrome plated and has only one moving part. An automatic mixing model with high gooseneck spout is available.

*The Chicago Faucet Company
Circle 415 on information card
Porcher Inc.*

*Circle 416 on information card
Epic*

Circle 417 on information card

Moen Group Stanadyne

Circle 418 on information card

American Standard

Circle 419 on information card

Delta Faucet Company

Circle 420 on information card

Elkay Manufacturing Company

Circle 421 on information card

Price Pfister

Circle 422 on information card

Rapetti

Circle 423 on information card

Automatic Faucet Company

Circle 424 on information card

Hot Water Dispenser

The Whirlpool Hot Water Dispenser is thermostatically controlled to provide water at temperatures up to 190 degrees Fahrenheit. The aspirator is detached and separated from the tank by a metal barrier and insulation. Liming is minimized because the tank is always immersed in cold water. The tank holds two quarts—up to 60 cups per hour of hot water.

*Whirlpool Corporation
Circle 427 on information card*

Cabinet Organizers

A brochure detailing the Keijé line of cabinet organizers lists product specifications for slide-out space savers, quarter-turn space savers, lazy susan space savers, space saver racks, and under-cabinet organizers. All products are finished in a durable epoxy that reputedly does not yellow, is odor free, and is easy to clean.

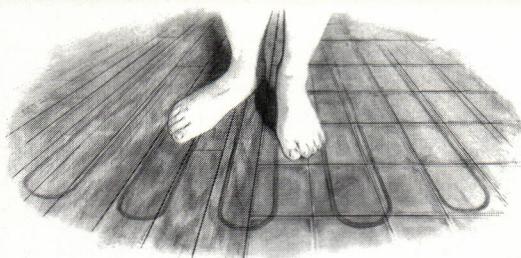
*Keijé
Circle 428 on information card*

Laminates

DuPont's Corian solid surface product is available in both sheet and precast shapes that can be cut, shaped, routed, drilled, or sanded like fine hardwood. Corian is nonporous, with a mineral-filled acrylic resin composition. Wood, brass, tile, acrylics, or other Corian colors may be blended into the laminate to create unique designs, patterns, accent lines, or edge treatments. Color and patterns run through its entire thickness, so minor surface scratches or cuts can be easily repaired using fine abrasives such as a household cleaner or fine sandpaper. Stains wipe off easily, and burns such as those from a cigarette can be sanded away.

Nevamar's Fountainhead line of decorative laminates comes in 91 colors, with several kinds of inserts and trims available.

continued on page 148



Make Tile and Hardwood Floors Feel as Warm as They Look

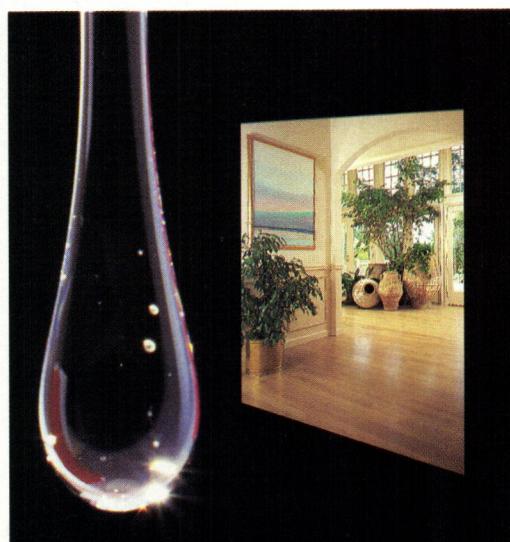
Wood and Tile floors are warm and inviting to the eye, but cold to the touch. You can change that by installing radiant floor heating from Wirsbo. The system is simple. Warmed water is circulated through a network of specialized plastic tubing beneath your tile, hardwood, or carpet floor. It's an easy system to install, compatible with any heat source, and more energy efficient than nearly all other heating methods. So make the part of your design your clients touch most as warm as it looks. Specify Wirsbo Radiant Floor Heating.

We'll help you design the most efficient radiant heating system on your current or next heating need. Find out all the benefits of Radiant floor heating. Call or write:

Wirsbo Company
P.O. Box 2025
Rockford, IL 61111
(815) 282-1141



Circle 131 on information card



A LASTING IMPRESSION

- The Floor Finish That Becomes a Selling Feature
- Crystal Clear Protection
- Wide Choice of Woodtones, Pastels, and Decorator Colors
- Eliminates Waxing and Polishing
- Superior Strength and Durability
- The Authentic Swedish Floor Finish
- Proven for Over 30 Years

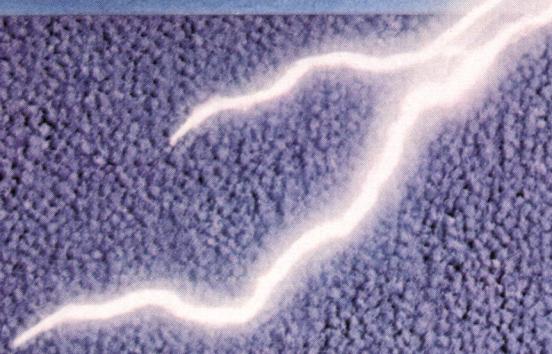
GLITSA AMERICAN

327 South Kenyon
Seattle, Washington 98108
1-800-527-8111
206-763-2855



Circle 133 on information card

D U P O N T



A N T R O N®



EVEN UNDER THE HARSHEST CONDITIONS DU PONT ANTRON® THRIVES.

Whatever the problems your interior environment poses, DuPont Antron can weather them all. DuPont Antron nylon is specifically designed for tough conditions. It gives the best protection against crushing and matting. And it handles soil and stains like no other carpet fiber can.

What's more, Antron handles all your design needs, too. By offering the widest range of colors, textures, and styles, Antron can help you find precisely what you want.

Maybe that's why so many architects and designers put their trust in Antron. And why they've made Antron the number one specified carpet fiber in the country.

Find out more about the DuPont Antron family of fibers in the DuPont Antron Specifiers Guide. For your free copy, call 1-800-448-9835.

THE ANSWERS COME EASY WITH ANTRON.®



REG. U.S. PAT. & TM. OFF.

Products from page 145

The Fountainhead sheet can be cut, drilled, and shaped for all kinds of applications, and the colors and patterns run the entire thickness of the surfacing material. Surfaces are nonporous and are designed to resist heat, stains, mildew, and impact.

Avonite polyester surfacing material from Avonite resembles quarried stone. Available in a faux Granite, Agate, Marble, and Parchment Stone, the product comes in either matte or semi- or high-gloss finish. Avonite is specified for countertops and high-use areas. The material reputedly cuts as easily as wood, so intricate details, inlays, edges, and sandwiching can be easily achieved. Avonite is fire-retardant, chemical- and stain-resistant, and comes in many colors.

Du Pont Company
Circle 429 on information card
Nevamar Corporation
Circle 430 on information card
Avonite
Circle 431 on information card

Sinks

Porcher Inc.'s Sapho Sink kit (shown below), contains a wall-mounted, white porcelain sink with accent components in red, white, or black epoxy or chrome. Accented items include a swivel-cap pop-up system, single-hole, off-center brass faucet, and two single towel bars. The package includes brackets. The sink is 25½ inches wide and 20½ inches front to back with five-inch ledges on each side. The basin is 15¾ inches in diameter and 7½ inches deep. Porcher's Bistro ceramic double-



bowl, self-rimming kitchen sink features extra-large bowls, an offset drain, and an offset deck. The larger bowl is 17¾ inches wide and 9½ inches deep and will accommodate jumbo-size utensils. The offset deck may be furnished drilled with up to four holes for spray and dispensers as well as faucet. The Bistro sink is 33x22 inches overall and comes in seven colors.

Norstad Ceramic makes handcrafted stoneware basins of vitreous stoneware guaranteed by the manufacturer not to chip, crack, or break after installation. Three sizes of lavatory sinks plus kitchen, vegetable, and bar sinks are offered. The sinks are round and self-rimmed and take standard 1¼-inch lavatory drains or a 3½-inch kitchen drain or disposal. The sinks come in eight solid colors, five contrast-banded colors, and five decorated patterns.

The Hostess line of ceramic kitchen sinks from American Standard are of European design. Four self-rimming models are offered: two with semicircular ends, one with a single bowl and an integral ribbed draining board, and one with two circular bowls and no draining board. The Hostess sinks are available in two colors, champagne and pearl white. They come with a range of accessories including an optional hardwood cutting board and coated wire utility baskets. One model has a fitted plastic colander.

Alape sinks have basins made of a single piece of drawn steel with an enamel coating called "Silkflex." The Silkflex coating comes in a variety of colors with a matte finish designed to resemble the sheen of silk. Double-bowled kitchen sinks are graded at the rim for quick runoff. The sinks feature attractive faucets and separate soap dispensers and have accessories such as teak chopping boards.

Porcher Inc.
Circle 411 on information card
Norstad Ceramic
Circle 412 on information card
American Standard
Circle 413 on information card
Alape
Circle 414 on information card

Refrigerators

General Electric's Monogram refrigerator has a computer-controlled diagnostic system to monitor an array of sensors placed throughout the refrigerator. These sensors sound an alert if any of several critical functions departs from normal status. The system will also detect power failures and alert the user if the refrigerator door has been inadvertently left open, the ice-maker arm has become blocked, or the diagnostic system itself is not functioning correctly.

Hotpoint's new 27-cubic-foot, side-by-side refrigerator, Model CSX27CK, features a through-the-door compartment that opens to a lighted compartment allowing one to reach items without opening the refrigerator door. The compartment opens downward and locks into place, offering a sturdy surface for preparing snacks and beverages. The compartment is also accessible from inside the refrigerator. Chilled air from the freezer section is ported directly to the compartment, providing a safe temperature for milk, cheese, sandwich meats, and other perishables. Touchpad electronic controls located above the ice dispenser monitor all key functions. An alarm beeps to alert users to potential problems, such as an abnormal rise in temperature in the fresh food section or an open refrigerator door. Extra-large and deep doors can accommodate large items such as one-gallon containers or four-liter beverage bottles. A wine rack is located beneath one of the shelves. A custom dispenser delivers crushed or cubed ice and chilled water through the door. Four separate, lidded dishes made of high-

continued on page 150

Architect John Minden on sound control with laminated glass.

"We knew this site had a severe traffic noise problem. But we wanted this to be a quality development. So did our client.

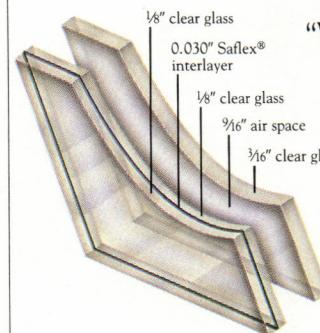
"We considered a triple glazing system. But it just didn't have enough sound control. Our glazier recommended laminated glass, so



I called Monsanto to get more information.

"They sent me their Acoustical Glazing Design Guide, and the software to go with it. That helped me get the configuration

I wanted.



"We're happy with the results. It's a nice development. With apartments

that are very leasable... and that makes our clients happy.

"In fact, the only complaint I've heard so far is that the installers can't hear each other through the windows."

John Minden, AIA
GMS Architectural Group
Bellevue, Washington



Architect's rendering of Victorian Apartments in Seattle, Washington.



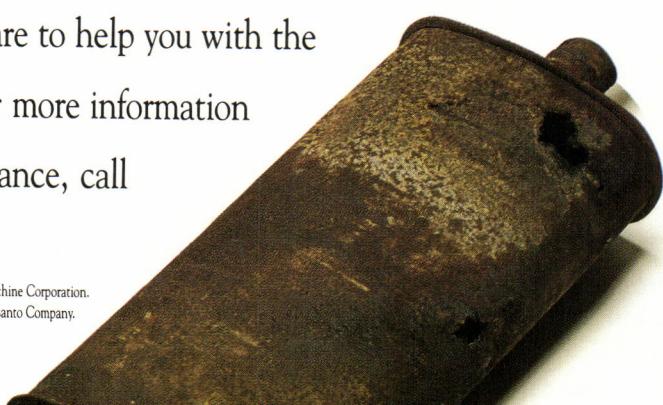
Laminated glass. Because Victorian Apartments wanted high style, not high decibels.

It's an increasingly common problem. A site so noisy you're not sure you can make it habitable. Let alone marketable. So you're stuck, between the need for sound control on one hand and the need for good architecture on the other.

The solution: windows of laminated architectural glass with Saflex® plastic interlayer, like these being installed in the Victorian Apartments.

Laminated glass lets you put in the windows you want, and keep out the sounds you don't. All at a cost that makes sense.

Find out more. Send in the coupon and we'll send you a free copy of our Acoustical Glazing Design Guide, plus IBM* PC-compatible software to help you with the specifications. For more information or technical assistance, call 1-800-325-4330.



Yes, please send me free information on laminated glass for sound control.

Send the Acoustical Glazing Design Guide.

Send the computer disk.

NAME _____

TITLE _____

COMPANY _____

ADDRESS _____

CITY _____

STATE _____ ZIP _____

PHONE (_____) _____

Send to: Monsanto Company, 800 North Lindbergh Blvd., Dept. 204, St. Louis, MO 63167

A7/88

Laminated glass. Making a clear difference.

Monsanto

SAFLEX
PLASTIC INTERLAYER

Circle 137 on information card

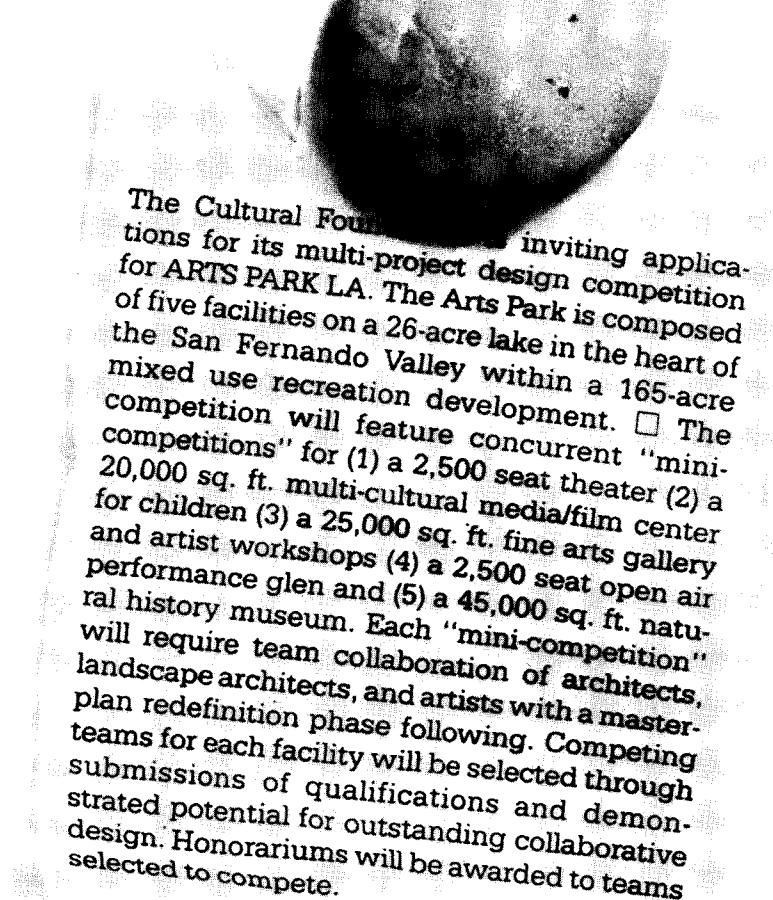
ARTS

INTERNATIONAL

PARK

DESIGN COMPETITION

LA



The Cultural Foundation is inviting applications for its multi-project design competition for ARTS PARK LA. The Arts Park is composed of five facilities on a 26-acre lake in the heart of the San Fernando Valley within a 165-acre mixed use recreation development. □ The competition will feature concurrent "mini-competitions" for (1) a 2,500 seat theater (2) a 20,000 sq. ft. multi-cultural media/film center for children (3) a 25,000 sq. ft. fine arts gallery and artist workshops (4) a 2,500 seat open air performance glen and (5) a 45,000 sq. ft. natural history museum. Each "mini-competition" will require team collaboration of architects, landscape architects, and artists with a master-plan redefinition phase following. Competing teams for each facility will be selected through submissions of qualifications and demonstrated potential for outstanding collaborative design. Honorariums will be awarded to teams selected to compete.

For a submission packet, send written request with a non-refundable fee of \$50.00 to: Donald Stastny, Professional Advisor, ARTS PARK LA, The Cultural Foundation, 21800 Oxnard Street, Suite 350, Woodland Hills, CA 91367

Circle 139 on information card

Products from page 148

grade thermoset material slide into a special mount beneath a refrigerator shelf. The dishes are durable enough to go from freezer to oven to dishwasher.

General Electric Company
Circle 409 on information card

Hotpoint
Circle 410 on information card

Ovens, Microwaves, and Range Hoods

Designer kitchen range hoods from Abbaka are available in satin-brushed stainless steel, mirror-finish solid copper, and gloss white, matte black, or custom-color enameled steel. The hoods are formed from solid metal plates that are welded and polished. Hoods are equipped with a centrifuge exhauster in single and dual configurations. The blower package includes lighting and controls. Hoods may also be special-ordered for use with exterior mounted fans. They are offered in both wall-mount and island models in lengths of 36, 42, and 48 inches. A standard convenience is a utensil rail with "S" hooks, in polished brass or chrome.

Amana Refrigeration's InstaGlow glass ceramic cooktop uses a halogen heating element designed to give instantaneous heat. The element glows visibly when the power is on, even at the lowest setting. Amana's white Radarange microwave oven features a large, stainless steel interior and a temperature control system.

Hotpoint from General Electric Appliances has introduced several countertop microwave oven models with 1.0 cubic foot of cooking capacity. Model RE1021 has an electronic digital display to indicate programmed cooking time, power level, and cooking function in use. The time of day is displayed when the oven is off. With 10 power levels available, Time Cook I and II offer time-controlled cooking and allow setting of two cooking functions within one program. An advanced probe system shuts off power when selected food temperatures are reached, and it beeps once a minute when the cooking function is finished. The Temp Cook/Hold function maintains the desired temperature of the food automatically.

Abbaka
Circle 406 on information card
Amana Refrigeration Inc.
Circle 407 on information card
General Electric Appliance Company
Circle 408 on information card

NEW AND NOTEWORTHY

All-Directional Shower Fixture

The UNiversal all-directional shower head fixture adjusts to over a height range of more than 20 inches. Made of heavy-gauge brass and silver-soldered for added durability, the fixture comes with standard $\frac{1}{2}$ -inch fittings and many designer colors.

Gemini Distributors
Circle 432 on information card

Products continued on page 152



HEAT MIRROR™ made it fly

Create a naturally-lighted glass enclosure for thirty-nine full-size aircraft, and still comply with one of the country's toughest energy codes. That's the challenge Ibsen Nelsen and Associates faced in designing the Museum of Flight at Boeing Field, Seattle, Washington.

The solution? Use over 55,000 square feet of Heat Mirror insulating glass. Heat Mirror provides the same level of solar control as dark tinted glass, yet lets in *over four times more natural light!* There's less need for artificial lighting and a net reduction of 35 percent

in the Museum's projected annual energy budget.

Compared to other low-e glazings, only Heat Mirror offers *Total Performance*: controlling winter heat loss, summer heat gain, ultraviolet radiation, sound transmission and condensation better than any other insulating glass available today.

To find out how Heat Mirror can open up your design options, contact Southwall Technologies, 1029 Corporation Way, Palo Alto, CA 94303. (415) 962-9111. Or see us in Sweet's: 08810/SOU.

For immediate help on a current project, call our Architectural Services Department, toll-free:

(800) 365-8794

 **Southwall
Technologies**



For Total Performance Windows.

Heat Mirror is a trademark of Southwall Technologies.
© Southwall Technologies 1988.

Stain-free Tile

Quantum II Stain Shield unglazed ceramic tile features virtually no water absorption, which enables the tile to repel tough stains on its surface. This process is achieved by an advanced firing process and manufacturing technology designed to create "total surface particle fusion." The tile reputedly resists tough stains such as motor oil, acid, red wine, felt markers, and shoe polish. To demonstrate this stain resistance a free "stain kit" is offered.

Buchtal Corporation

Circle 433 on information card

Brochure on Crack Sealant Systems

A crack sealant system called Thermo-Seal uses specifically engineered equipment and high-performance sealants for all-weather performance. A Thermo Blaster cracks open, cleans, and dries cracks, and a full-depth monolithic band of sealant is then

applied using a Thermo Bander. Thermo-Seal products meet or exceed ASTM, Corps of Engineers, state, and federal specifications.

Neyra Industries Inc.

Circle 434 on information card

Financial Management Software

Integrated job cost and accounting packages for construction, architecture, engineering, and related industry markets consist of five modules: job costing, payroll, accounts receivable, accounts payable, and general ledger. An automatic invoicing system, a data base, and report generation capabilities are available for both the Construction Master Accounting System (CMAS) and the Architectural Engineering Master Accounting System (AEMAS).

Both AEMAS and CMAS software feature on-line "help" systems, tutorial man-

uals, and demonstration data for training purposes. Additional training and telephone support are provided by the manufacturer. The systems operate under the XENIX operating system, which is similar to the MS-DOS-based package; on IBM PC/AT and compatibles; and on 80386-based computers.

Data-Basics

Circle 435 on information card

Cogeneration Systems

Zond cogeneration systems feature completely assembled modular units that are monitored constantly and operated by remote control. An automatic shut-off can be programmed to turn off the system during periods when it is cheaper to buy electricity from the utility.

Eight models are available with capacities from 65 to 200 kilowatts producing 3.9 to 11.2 therms per hour, achieving up to 82 percent efficiency. For more power, multiple modules may be installed.

A maintenance service agreement guarantees the system for a minimum of 8,000 hours per year (or 333 days).

Zond Cogeneration Systems

Circle 436 on information card

Shade System

A track-guided motorized or manual folding shade system for solariums, skylights, and sloped window applications is available from Castec Inc. The patented Trackstar system is designed to reduce radiant and ambient heat, reduce airconditioning costs, and eliminate glare while enhancing exterior views. The Trackstar system consists of custom-made shades of sunscreen, natural canvas, or the customer's own material. Track is available in an anodized bronze, standard white, clear aluminum, or custom colors, with all necessary hardware supplied. A springless roller shading system called Rollstar, also offered by the manufacturer, meets the same service requirements as the Trackstar system. Rollstar comes in 25 fabric styles and colors, with custom color and fabric combinations available.

Castec Inc.

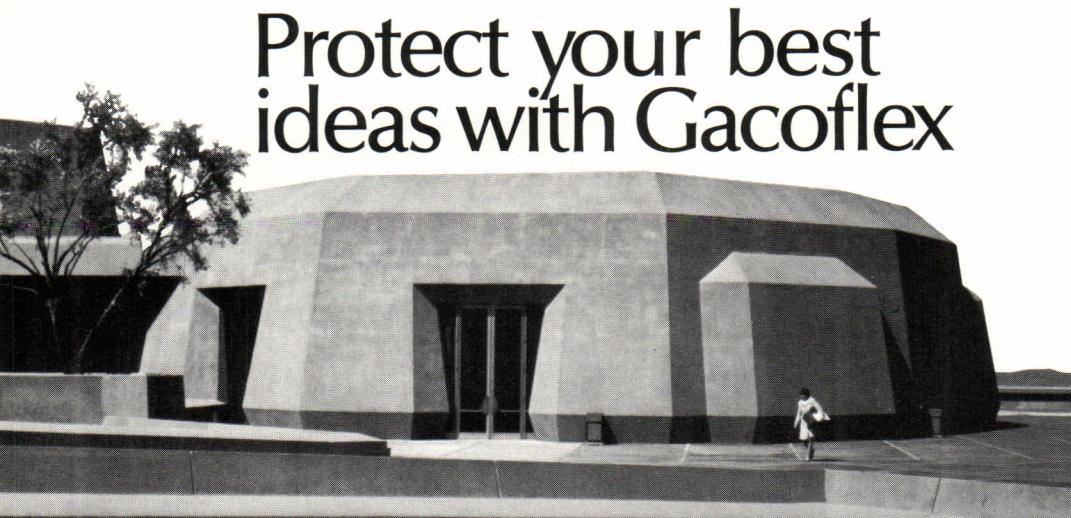
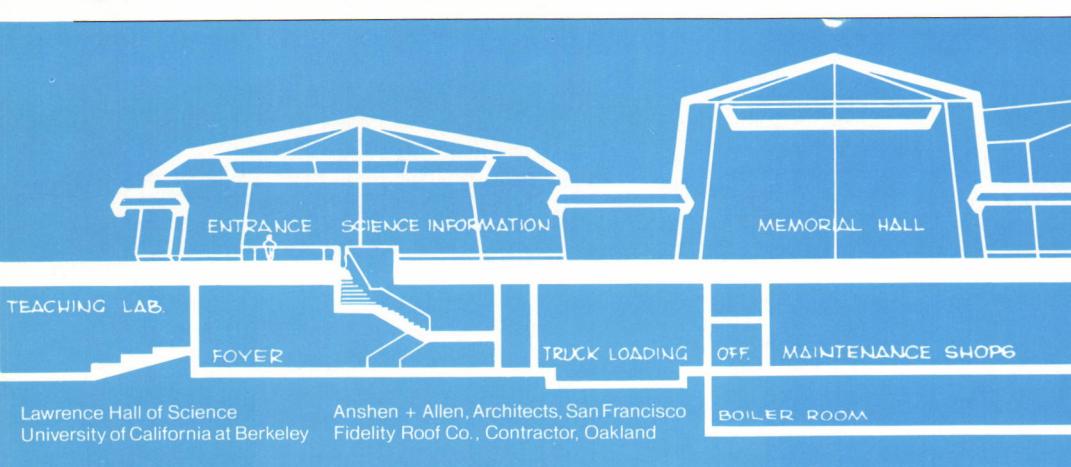
Circle 437 on information card

Elevator Control

U.S. Elevator, a subsidiary of Cubic Corp., has applied microprocessor technology to elevator controls to come up with an elevator system with a computer brain capable of gathering information and performing a status check 10 times every second. Many security features are built into the microprocessor controls.

The monitoring system, called the Building Executive Elevator Positioning (B.E.E.P.) system, monitors the position and status of all the elevators in a building simultaneously, displaying information in full-color graphics at a computer station in the building's security office or lobby 24 hours a day. Not only can the

continued on page 154



Gacoflex elastomeric coatings have protected these roofs and walls for over twenty years. That's Gaco's business, keeping your ideas as bright, new, functional and dry as when first built.

Gaco's time-tested and proven surface protection systems are the reason the University came back to Gaco five years ago for an elastomeric liquid-applied tinted liner for the fountain pool.

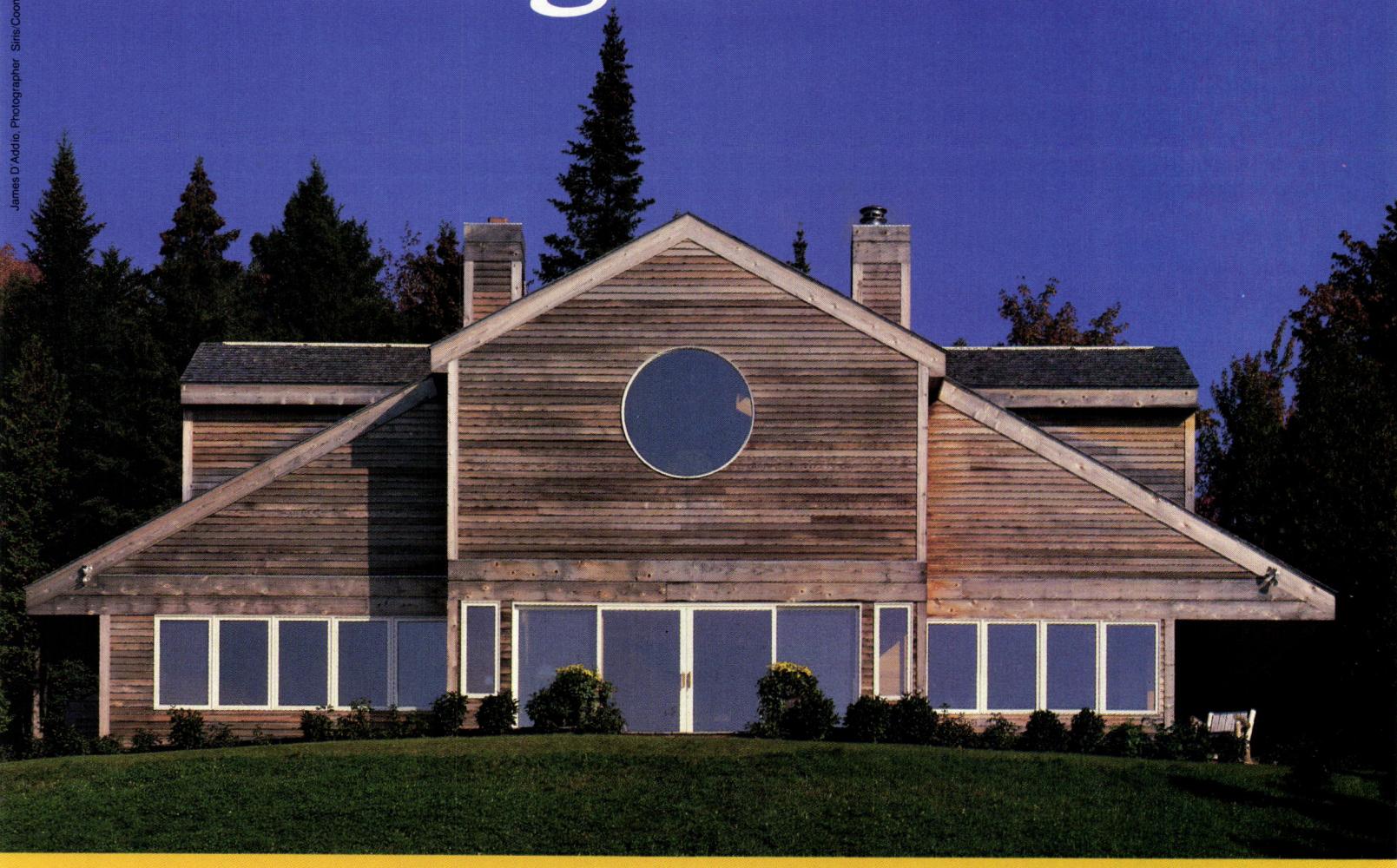
Gaco systems include waterproofing for slabs, below grade and traffic areas, special formulations for special problems, and our new anti-graffiti coatings.

Send for our new brochure and architect's data file on the complete line of fluid, foam and membrane systems available from Gaco Western, Inc., and the personal technical services that go with them. Write P.O. Box 88698, Seattle, WA 98138 or call 800-456-GACO, see Sweets Building file or circle number.

Circle 143 on information card



Setting the trend.



Hertz trend-setting services and special rental discounts are the keys to savings when you use your CDP ID# 11356 for business or leisure travel. Call 1-800-654-2200. In Oklahoma call 1-800-522-3711.

Computerized Driving Directions and Portable Cellular Car Phone Rentals are just two of the innovations that make Hertz service special. As a member of AIA, you're invited to join the Hertz #1 Club too! Membership is free and offers you fast, personalized service when making your reservation and picking up your car. Call Hertz for details.

Mention your CDP ID# 11356 and take advantage of Low Daily Contract Rates or 10% off Affordable Daily Rates (whichever is less at the time of rental). Save 10% Off Affordable Weekly and 5% Off Affordable Weekend Rates too! Weekly and Weekend discounts available on compact and larger cars.

TERMS AND CONDITIONS: Rates and discounts available at participating Hertz locations in the U.S. and are subject to change. All rates include a limited number of miles with a charge for excess miles. Contract Daily Rates include 100 free miles per day with a charge for excess miles. Cars must be returned to renting city unless otherwise specified. Rates not available in Manhattan locations from 12:01 AM Friday to 1 PM Sunday and during certain holiday periods. Minimum weekly/weekend rental periods and other restrictions apply. Taxes, optional refueling service, LDW, PEC & PAI, LIS, drop off service charges or any other extra service charges are not included and are not subject to discount. Call Hertz for details.

CAR CLASS	DAILY CONTRACT RATE Includes 100 Free Miles Per Rental Day
A—subcompact	\$36
B—compact	\$39
C—midsize	\$41
D—2-door full size	\$43
F—4-door full size	\$45

Rates quoted in effect as of March 1, 1988. Daily contract rates \$6 higher in Alaska, Boston, Washington, D.C., Chicago, Dallas, Detroit, Hartford, Houston, Philadelphia, Pittsburgh including area airports. Daily contract rates \$10 higher in NY, including JFK, LaGuardia, Newark airports and the Borough of Manhattan.

Products from page 152

elevator be monitored within the building, but data can be sent across the country for display and analysis by U.S. Elevator.

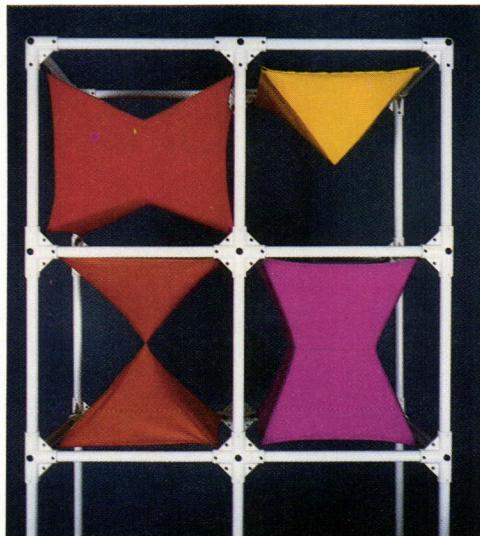
The computers control all operations of the system, monitoring, gathering information, and generating reports. Other features include demand logic to answer hall calls based on the elevator's proximity and priority of the call.

Safety features include hall call buttons and cab buttons within reach of a person in a wheelchair and Braille numbering next to buttons for the blind. A firefighter's access code operates in a fire emergency to direct all elevators to the ground floor and keep them there with the doors open. Only firefighters and elevator maintenance personnel with a special turnkey can then unlock the controls. Another fire safety code requirement is the use of fire-retardant materials in the wall panels, ceiling materials, carpets, and accessories within the elevator cab.

Cubic Corporation
Circle 438 on information card

Ceiling Banners

A line of accent banners is available in a variety of three-dimensional shapes, colors, and silk-screened custom and standard designs (shown in photo above). Among the shapes offered are cones, arcs, spirals, and loops. Design accent banners can be hung vertically, horizontally, or diagonally from the manufacturer's line of pipe



and junction cubes or from open-cell ceiling systems. The banners are made of a polyester and cotton fabric that meets Class A fire-code restrictions. The banners are available in 30 colors and can also be custom made in any color, size, or fabric.

Integrated Ceilings, a subsidiary of USG Interiors

Circle 439 on information card

Architectural Metals Brochure

An eight-page color brochure includes uses, installation, maintenance, and custom fabrication capabilities of architectural metal panels and metal roofing systems. The prefinished steel and aluminum Una-Clad panels are fabricated with Kymar

500, a 70-percent, full-strength paint system. The metal panels are designed for use in roofing, mansard, flashing, coping, and fascia applications. Una-Clad is available in flat sheet, slit coils, and three styles of roofing panel systems.

The brochure also illustrates three new metal roofing systems with detailed specifications, optional metals for usage, and benefits of each application. Preformed panels include a snap-on standing seam, snap-on batten, or lock-form standing seam system.

Copper Sales Inc.
Circle 440 on information card

Metal Trim

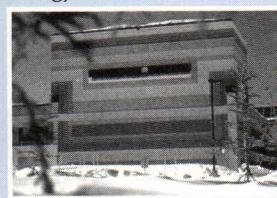
Metal trims from the H.K. Porter Co. for use in building installations come in a variety of shapes and sizes, with special orders available in zinc or other metals. Screeds from the manufacturer include the Superior No. 115 screed, designed for ventilating dead air spaces in attics, under arcades, canopies, eaves, and around foundations. The No. 115 comes in six point-to-point widths and can be finished in zinc on special order. The 120/140 "V" type ventilation screeds are used to hold plaster and stucco, and are suggested for use as soffit vents. Easily removable when access to wiring or plumbing is required, the "V" screed is stocked in $\frac{3}{4}$ -inch and $\frac{7}{8}$ -inch grounds in 10-foot lengths. The 222/224 plain-edge-type ventilation screed is good

continued on page 156

FRY IS MOLDING TECHNOLOGY.

Responding to new trends in architectural design, Fry Reglet has been developing innovative architectural moldings for over twenty years. Our aluminum products are designed to marry form and function, creating surprisingly dramatic results.

Specify Fry — our products are molding technology.



Look for us in Sweets Catalog 09200/FRY.

F **FRY REGLET.**

625 S. Palm Ave. • Alhambra, CA 91803 • (818) 289-4744 • Fax (818) 289-0537
2777 Peterson Place • Norcross, GA 30071 • (404) 441-2337

Circle 147 on information card



National Council of Acoustical Consultants...A Sound Commitment To The Highest Standards

When you rely on qualified consultants for their expertise in acoustical services, it's important to feel secure with the firm you choose. NCAC is an organization of acoustical consulting firms committed to the advancement of quality and services of the profession.

NCAC member firms and individuals are professionals in the field of acoustics, providing specialized consulting, engineering and design services, in

- ▲ Architectural Acoustics
- ▲ Environmental Acoustics
- ▲ Industrial Noise and Vibration Control
- ▲ Sound Reinforcement Systems

Since each NCAC member is dedicated to the highest standard of professional ethics and business practices, you can feel confident that your projects will be handled with knowledge and integrity.

For a directory of NCAC members, call us at (201) 379-1100 or send us a letter to: National Council of Acoustical Consultants ▲ P.O. Box 359 ▲ Springfield, NJ 07081

Circle 149 on information card

THE AMERICAN ARCHITECTURAL FOUNDATION

would like to recognize and thank the many contributors who helped make our public outreach work possible during 1987.

\$10,000 OR MORE*

BP America Inc.
College of Fellows
Mrs. W. Randall Compton
Mr. and Mrs. Leo A. Daly
Graham Foundation
Institute of Museum Services
Institute of Turkish Studies
National Endowment for the Arts
Pella Windows

\$5,000 OR MORE*

DC Community Humanities Council
Friends of Vieles Maisons Francaises
Mars Foundation
McShain Charities
Mrs. Jefferson Patterson
RTKL Associates Inc.
Signet Bank
Mrs. Lee Templeton
Touche Ross

\$1,000 OR MORE*

Ms. Aliza Adler
Andersen Corporation
Armstrong World Industries
Mr. and Mrs. Howard M. Bender
Mr. and Mrs. Richard G. Boxall
Mr. and Mrs. Benjamin E. Brewer, Jr.
Mrs. David K. E. Bruce
John and Mary Ann Busby
Mr. Oliver T. Carr
Mr. and Mrs. Kevin Cassidy
Cecil Howard Charitable Trust
Mr. and Mrs. S. Allen Chambers, Jr.
Mr. and Mrs. L. William Chapin, II
Mr. and Mrs. David M. Childs
Mr. and Mrs. A. James Clark
Mr. and Mrs. Jeffrey N. Cohen
Mrs. H. Dunscombe Colt
Mr. and Mrs. James P. Cramer
Miss Betty Lou Custer, FAIA
Mr. and Mrs. Sylvester Damianos
The Delos Company, Ltd.
Mr. Joseph Esheric, FAIA
Mr. and Mrs. Thomas J. Eyerman
Mr. and Mrs. Winthrop W. Faulkner
Mrs. Roberta Taylor Fuller
Mrs. Johnson Garrett
Gebhard Gouraud Foundation
Glen-Gery Brick Corporation
Mr. and Mrs. Charles M. Goodman
Mrs. Nancy M. Gray
Mr. and Mrs. George Hartman
Mr. and Mrs. Donald A. Hawkins
Mr. and Mrs. Monee E. Hawley
Mr. Joseph Horning
Mr. and Mrs. Hugh Newell Jacobsen
Johnson-Lancaster, Inc.
Mr. and Mrs. Louis M. Kaplan
Keyes Condon Florance
Kobrand Corporation
Mrs. Susan Culman Kudlow
Mr. and Mrs. Alan J. Lockman
Mrs. Ellen B. MacNelle
Mr. Terrence M. McDermott
Mrs. Alice N. McIlvaine
National Trust of Great Britain
Mr. and Mrs. John U. Nef
Mr. George M. Notter, Jr., FAIA
Mr. and Mrs. Ted P. Pappas
Pennsylvania Society of Architects/AIA
Mr. and Mrs. Whayne S. Quin
Mrs. Barclay K. Read
Mr. William A. Rose, Jr., FAIA
Ms. Carol Sakata
Mr. Larry A. Sauer, AIA
Mr. and Mrs. B. Francis Saul, II
Mrs. Katharine S. Shands
Swanke Hayden Connell
Mr. and Mrs. Harry M. Tayloe
Mr. James D. Tittle, FAIA
Mr. and Mrs. G. Truman Ward
Mrs. Frankie Welch
Mrs. Madeleine Will

\$100 OR MORE*
Mr. George Alexander
Ms. Lavone Andrews
Anonymous
Mr. Leroy Bagley
Mr. Paul H. Barkley, AIA
Mr. Anthony Beluschi, AIA
Ms. Marie Bentel
Mr. James C. H. Bonbright
Mr. Joseph N. Brancato

Ms. Louise Braverman
Mr. Leon Bridges, FAIA
Mr. J. Carter Brown
Butler Rogers Baskett
C. J. Lawler Associates Architects
and Planners
CRSS, Inc.
Cabrillo Chapter/AIA
Mr. Robert L. Campagna
Mr. Antonio Marques Carrion
Centerbrook Architects
Central Pennsylvania Chapter/AIA
Mrs. Joan Challinor
Ms. Pao-Chi Chang
Columbus Chapter/AIA
Mr. David H. Condon
Mr. Gerald Cone
Cowles Charitable Trust
Mr. Richard L. Crowther, FAIA
Mr. Leonard J. Currie, FAIA
Cynthia Frewen Architects
Mr. Antonio M. DaSilva, AIA
Dallas Chapter/AIA
Dougherty & Dougherty
Ms. Ann M. Dunning
Ms. Lynn Herne Eisenhauer
Mr. Douglas K. Englebretson, AIA
Ms. Kristine K. Fallon
Florida North Chapter/AIA
Ms. Juliet C. Folger
Mr. Clement J. Ford, AIA
Fort Worth Chapter/AIA
Mr. Albert Frey, FAIA
Ms. Carolyn D. Geise
Ms. Joan E. Goody
Mr. Allan J. Grant, AIA
Mr. Robert E. Greager, AIA
Mr. Charles Gwathmey, FAIA
Gwathmey & Seigel
Hawaii Society/AIA
Mr. Paul Herbert
Mr. John Ray Hoke, Jr., AIA
Ms. Cynthia Howard
Ms. Elsie M. Hurst
I. M. Pei & Partners
Mr. Clare D. Imhoff, AIA
Indianapolis Chapter/AIA
Mr. John Peters Ireland
KVI Group—Chicago
Mr. Robert N. Kessler
Leonard Parker Associates Architects
Mr. Dick Lohan
Loomis Sayles
Mr. Charles Luckman, FAIA
MHA Inc. Architects
Mr. Harry Mahler
Mr. Gil F. Marcelo
Ms. Nancy McAdams
Mr. Philip J. Meath, FAIA
Mrs. Marilyn B. Montgomery
Mrs. Robert J. Moore
New Hampshire Chapter/AIA
Northern Virginia Chapter/AIA
Ms. Vicki L. Notes
Ms. Rosaria Piomelli
Mr. and Mrs. Thomas M. Roberts
SLR Architects
Sarah Buchanan Associates
Mr. William Schallenberg
Mr. Norman J. Schlossman, FAIA
Sigel, Sklarek, Diamond Architects
Mr. James Lee Thomas, AIA
Mr. Warren D. Thompson, AIA
Mr. William L. Van Allen, AIA
Mr. Tom Van Housen, AIA
Ms. Janet Waterhouse
Weller, Fishback & Bohl, Architects P.A.
Mr. Robert A. Weppner, Jr.
Western Michigan Chapter/AIA
Mr. Kenneth F. Wissmeyer

OTHER CONTRIBUTORS*

Mr. William T. Alderson
Mr. William J. Anderson, Jr.
Andres Duany and Elizabeth Plater-Zyberk,
Architects, Inc.
Architectural Concepts, Inc.
Mr. Armand P. Avakian, AIA
Ms. Anne Baldwin
Balmer Architectural Group, Inc.
Mr. Alexander Ban, AIA
Barnett Schorr Architects
Mr. Richard E. Barrow, AIA
Mr. C. Warren Bates, Jr., AIA

Mr. Albert B. Bauer, FAIA
Mr. Gary J. Bell, AIA
Ms. Marsha Berger, AIA
Ms. Nancy Beringer
Ms. Kathryn Berry
Ms. Betty Bird
Mr. Thomas J. Bissett
Blake Allison Architects
Mr. Sigmund Blum, FAIA
Mr. Joseph D. Bova, RA
Mr. Roger Brady
Mr. Ron Brezina, AIA
Mr. William H. Brown, AIA
Ms. Sheila Fogel Cahman
Ms. Regula Campbell, AIA
Ms. Liz Cashion
Mr. J. Henry Chambers, FAIA
Ms. Tamara K. Chambliss
Ms. Teresita Chao
Mr. Paul Chovanec
Mr. Marvin H. Clapp
Mr. Chris R. Clark, AIA
Ms. Elizabeth S. Close, FAIA
Mr. Jon H. Corsten, AIA
Mr. Richard Corner
Mr. H. Walter Damon, AIA
Mr. Clark A. Davis, FAIA
Mr. Barry Davis
Mr. John Dean
Ms. Amy Delson
Mrs. Janice B. Denner
Mr. Theodore W. Dominick, AIA
Donald R. Goldman & Associates
Ms. Merle Easton
Mr. Jerome Leslie Eben, AIA
Mr. Lawrence D. Ellis, AIA
Ms. Susan Eschweiler
Eyerman-Csala-Hapeman
Mr. Michael W. Fairchild, AIA
Falconer Scofield and Hauck/Architects
Mr. Avery C. Faulkner
Mr. Thomas A. Feazel, AIA
Ms. Karen Fox
Ms. Sara Funk
Mr. Cesar Galup
Mrs. William H. Gardner
Ms. Susan B. Gardner
Mr. Charles F. Garrison
Gilles Stransky Brem Architects
Mr. William Gilmore
Ms. Joanne Goldfarb
Mr. Ronald D. Goodman
Grant Pedersen Phillips Architects
Ms. Audrey Greenwald
Ms. Ann Hagerty
Mr. John C. Harkness, FAIA
Mr. Benjamin Harris
Mr. Clarke E. Harris
Mr. and Mrs. Michael Hayes
Ms. Diane M. Hecht
The Henry Klein Partnership
Hesson Andrews Sotomayor
Mr. Thomas G. Hofmaier
Ms. Dorothy J. Holland
Mr. Jackson R. Holliday, AIA
Jack P. Fernery & Associates
John A. Iacopi & Associates, Ltd., AIA
Mr. Larry Johnson
Mr. and Mrs. Louis Kaplan
Kate Johns Shaw
Ms. Marilyn W. Klein
Mr. Walter J. Konrad, AIA
Mr. Armen V. Koogchian
Mr. James Koolish
Ms. Susan Woodward Kotkins
Mr. Wesley G. Krantz, AIA
Mr. Ed F. Kufus, AIA
Mr. Joseph N. Lacy, FAIA
Mr. G. Barry Lamm
Mr. Neil Lamont, III
Mr. Robert Edward Lane, AIA
Lane Architectural Group
Mr. Bernard J. Lanza, AIA
Mr. and Mrs. Murray Lebwohl
Ms. Antoinette J. Lee
Mr. Kurt Floyd Lent
Mr. C. Richard Lessard
Levengood Hammel, Architects
Levy + Levy Architects, AIA
Mr. Anthony Lord
Mr. William Love
Mr. Harry Lowe
Ms. Colleen Mahoney
Margo Jones Architects

Mr. and Mrs. Harwood Martin
Mr. Kent L. McLaren, AIA
Ms. Iris Miller
Mr. James W. Montgomery, Jr., AIA
Mr. James C. Morehead, Jr., FAIA
Ms. Elizabeth Moynahan
Ms. Rosemary F. Muller
Ms. Deborah L. Murphy, AIA
Mr. William Muschenheim
Mr. Bernard A. Nebot
Mr. Howard Needles
Northeastern Minnesota Chapter/AIA
Mr. Robert M. Nowinski, AIA
Mr. John C. O'Hearne
Mr. John J. Odell
Mr. Harry E. Ormston
Papp Architects, P.C.
The Parker/Croston Partnership
Ms. Nancy Peacock
Ms. Nina Pence
Mr. William R. Peoples
Mr. Mark A. Philip, AIA
Plan One/Architects
Mr. Wilson Pollock
Mr. Pedro F. Pou-Lines, AIA
Mr. Ivan S. Poutatine
Mr. Herbert J. Powell, AIA
Mr. Norris F. Prentice
Ms. Kathryn Prigmore
Mr. Paul Quick, II, AIA
Quina Associates Architects/Planners
Mr. James W. Rice
Riecke Sunland Kono Architects, Ltd.
Rise Perlmuter Goldstein
Robert Haig Associates
Ms. Judith Robinson
Mr. John F. Rolph, III
Mr. Edmond P. Rondeau, AIA, CSI
Mr. Roger N. Ryan, FAIA
Mr. Garrett V. S. Ryerson, Jr., AIA
Rysavy Hartman Associates
Mr. Leonard Scheer, AIA
Mr. Glen Alan Schultz, AIA
Mr. Gregory J. Scott
Mr. William Seale
Mr. Norman Simon, AIA
The Honorable Alan K. Simpson
Slemmons Associates Architects, P.A.
Mr. G. E. Kidder Smith, FAIA
Mr. Patrick Smith
Mr. Robert L. Smith
Mr. Craig D. Smith
Mr. Ivan H. Smith
Smith and Stephens Architects, Inc.
Mr. R. Lloyd Snedaker
Ms. Karen Lee Sobol
Ms. Janet W. Solinger
Mr. Raphael S. Soriano, FAIA
Mr. M. Wayne Stoffle
Mr. Lewis A. Storrs, AIA
Ms. Hortensia R. Stoyan
Mr. Richard H. Stuckman, AIA
Mr. Marvin D. Suer, FAIA
Ms. Sarah Susanka
Mr. David Tannous
Tapley/Lunow Architects
Mr. D. Coder Taylor, FAIA
Mr. James P. Teevens
Mr. Lee B. Temple
Mr. Paul Theerman
Mr. James E. Theiss
Ms. Jennifer Thompson
Mr. Robert E. Todd, AIA
Mr. Osvaldo L. Toro, FAIA
Mr. Carl David Toth
Mr. Middleton Train
Mr. J. Earl Trudeau
Mr. Thomas P. Turner, Jr.
Urban Works Inc.
Mr. Gene Verge, AIA
Ms. Sandra Wadsworth
Mr. and Mrs. Wilcomb E. Washburn
Mr. Robert Paul Weissner, AIA
Mr. Frank J. Whalen, Jr., AIA
Ms. Ottroide White
Mr. Millard F. Whiteside, AIA
Mr. Robert H. Wicker
Mr. E. Davis Wilcox, AIA
Mr. William M. Wills, AIA
Mr. and Mrs. David N. Yerkes
Mr. Keith E. Youngquist, AIA
Ms. Joyce Zaitlin

*Partial list

Products from page 154

for use with plywood and plaster, and primarily for use in plenums and ducts. This screed is also easily removable when access to wiring and plumbing is required. Manufactured in 10-foot lengths, all screeds are constructed of 26-gauge galvanized steel. A Flex Track metal trim from the manufacturer is designed to help ceiling deflection by having the track operate as a slip joint on the ceiling track. The V shapes on the two side planes give as pressure is put on top of the track. The track comes in 24- and 20-gauge steel, and in 10-foot lengths. Other shapes and sizes of metal trims are also available from the manufacturer.

*Electrical div., H.K. Porter Company Inc.
Circle 441 on information card*

Concrete Fastener

The Hi-Tuff Concrete Spike is a one-piece, high-tensile and high-shear strength, coated carbon steel expansion anchor that provides pullout strength in concrete decks. The mechanical fastener is treated with a coating system that resists acidic and salt environments, and is designed to withstand the abrasion of insertion into concrete.

The spike is installed by driving a hammer or pneumatic drive tool into a pre-drilled pilot hole. No special bits are required. The S-shaped bend preformed in the shank enables the spike to hold firmly in concrete. After being driven into the pilot hole, the S-bend expands due to

spring tension and grips the wall of the hole—resulting in pullout values of approximately 1,000 pounds (tensile) in average-density concrete (3,000 pounds). The spike is used with standard two-inch Hi-Tuff plates and is available in lengths from 2 to 8 inches.

*J.P. Stevens
Circle 442 on information card*

Metal Stool

Architect-designer Allesandro Mendini has designed Stelline, the stool shown below. Constructed of metal pipe and painted dark or light gray, it has a semiflexible polyurethane seat.

*Elam S.p.A.
Circle 443 on information card*



Safety Switch Receptacle

A safety switch with an interlocked receptacle cannot be turned on until the plug is completely inserted in the receptacle. The plug then cannot be removed until the switch is in the off position. The switch enclosure door is also interlocked with the switch. Power cannot be turned on with the enclosure door open, and the door cannot be opened by unauthorized personnel with the switch on.

This new interlock switch is housed in a sheet metal enclosure for use in sheltered areas where high amperage power cord connections need protection when used for electric powered equipment like portable conveyors; sawing, drilling, or lifting tools; welders; battery chargers; and all types of temporary power connections used during building construction.

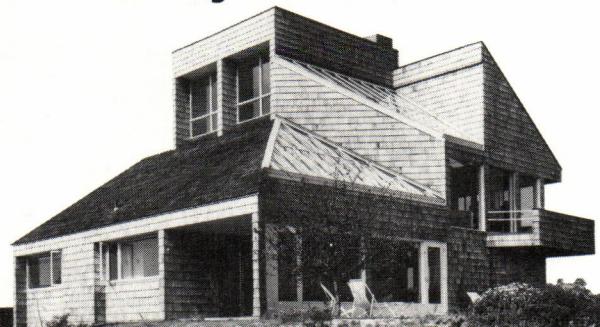
The Max-Gard interlock is available in 30-, 60-, and 100-ampere, and 480- and 600-volt ratings with a three-phase, three-pole, fused configuration. Other optional ratings and configurations are available. The Max-Gard safety switch meets UL requirements for plugs, receptacles, switches, and enclosures.

*Midland-Ross Corporation
Circle 444 on information card*

Aluminum Sandwiched Facing

Alucobond sandwiched facing for exterior and interior applications is made of two thin sheets of aluminum with a thermoplastic core. It is available with various

How many ways to use cedar shingles? How many trees in a forest?



Architect: Barron & Associates

The possibilities are as infinite as your own imagination. Because the enduring beauty of red cedar shingles and shingles adds striking warmth to any design you create.

To learn why red cedar shingles and shingles are such an excellent architectural solution, send for your free copy of our Architect's Cedar Library. It offers everything you need to know about cedar shake and shingles.



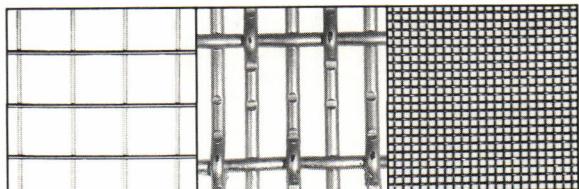
These labels on the bundles of Red Cedar shingles and shingles are your guarantee of Bureau-graded quality. Insist on them.

Red Cedar Shingle & Handsplit Shake Bureau

The recognized authority

Suite 275, 515-116th Ave. NE, Bellevue, WA 98004

Circle 153 on information card



WIRE CLOTH

ALL TYPES • ALL METALS

24 HOUR SHIPMENT
FAST CUT-TO-SIZE SERVICE

**SEND FOR
FREE CATALOG!**

CLEVELAND • CHICAGO • DALLAS • ATLANTA • NEWARK • TAMPA



McNICHOLS CO.

5501 Gray St./Tampa, FL 33609
813-876-4100 TELEX: 52706
800-237-3820 (USA)

800-282-6600 (FL) - 800-548-9333 (NJ) - 800-992-0331 (OH)



Circle 155 on information card

core thicknesses, and the composition of the core allows the panel to take on any shape and design. All panels are supplied with a mill edge. Their strength-to-weight ratio makes them resistant to buckling, rippling, and oil-canning. Panels can be attached to other elements with aluminum extrusions using either the rout-and-return or the continuous-edge grip method. The anodized panels come in several tones, and they can be finished on one or both sides. Coil-coated painted panels come in standard and custom colors and paint formulations. Painted surfaces clean easily with a sponge and a soft, alkali-free detergent in water. Alucobond is designed to resist chemicals, weather, and corrosion; it absorbs sound and damps vibrations.

Composite Materials division, Consolidated Aluminum

Circle 445 on information card

Retractable, See-Through Roof

A motorized and retractable solar Lexan roof divides into six sections with interlocking slats powered by motors that can open or close the roof in as little as 30 seconds.

The translucent slats are designed to be shatterproof and to block cold air in the winter. Each section of the roof is 6 feet wide by 8 feet long and can be raised and lowered on any angle, much like a rolling shutter.

Somfy Systems

Circle 446 on information card

CREDITS

House in Cleveland Heights, Ohio (page 80). *Architect: Jefferson B. Riley, AIA, Centerbrook Architects, Essex, Conn.* Project manager: Walker J. Burns III, AIA.

House in Tesuque, N.M. (page 84). *Architect: Antoine Predock, FAIA, Albuquerque, N.M.* Project architect: Jon Anderson, AIA. Builder: Blue Raven Construction Works Inc.

The Beach Highlands, Santa Rosa Beach, Fla. (page 88). *Architect: James Mount, AIA, Atlanta.* Associate design team: Curt Flaherty, Paul Sorensen. General contractor: Steve Landry. Interior design: Sharon Mount.

The Reichhelm Residence, Westport, Conn. (page 90). *Architect: Mark P. Finlay Architects Inc., Fairfield, Conn.* Principal in charge and project architect: Mark P. Finlay, AIA. Project manager: Robert DeVore, AIA. Mechanical engineer: Econ. Structural engineer: DeStefano Associates. General contractor: Meinke Associates. Interior design: Mark P. Finlay Architects Inc. Dock: Mark P. Finlay, AIA.

Hisaka Residence, Cambridge, Mass. (page 92). *Architect: Hisaka & Associates, Architects, Cambridge, Mass.* Principal in charge: Don M. Hisaka, FAIA. Archi-

tect: George Janson. Structural engineer: Weidlinger Associates.

The Inn by the Sea, Portland, Me. (page 94). *Architect: Teas, Feely & Hingston, Portland, Me.* Partner in charge: T. Scott Teas. Project managers: Daniel W. Cecil, Ann Fontaine-Fisher. Landscape architect: Land Use Consultants. Structural engineer: Structural Design Consultants Inc. Electrical engineer: Electrical Design Consultants. Contractor: Morgan Hill Construction Co.

The Inn at Spanish Bay, Pebble Beach, Calif. (page 98). *Architect: Bull Volkmann Stockwell, San Francisco.* Principal in charge: Henrik Bull, FAIA. Project manager: Gary Fong, AIA. Architectural design team: Henrik Bull, FAIA; Sherwood Stockwell, FAIA; Gary Fong, AIA; Will Adams, AIA; Charles Desler. Interior designer: Hirsch/Bedner & Associates. General contractor: Weitz/Cohen Construction Co. Landscape architect: MPA Design. Structural engineer: Martin, Middlebrook & Nishkian. Mechanical and electrical engineer: Syska & Hennessy Inc. Lighting consultant: Lightsource. Soils engineer: Lee & Praszker. Civil engineer: Bestor Engineers Inc. Laundry consultant: Clevenger Associates. Acoustical engineer: Charles M. Salter Associates Inc. Audio-visual consultant: American Audio Visual Corp. Cost estimator: Adamson Associates. □

Redwood

Specifier's File

Free folio of literature for architects illustrates the beauty and performance of redwood.

Grades and Uses

Properties and Uses
Redwood Homes
Architectural Guide
Landscape Guide
Exterior Finishes
Interior Finishes
Rooftop Decks

Name _____

Firm _____

Address _____

City _____

State _____

Zip _____

Telephone _____

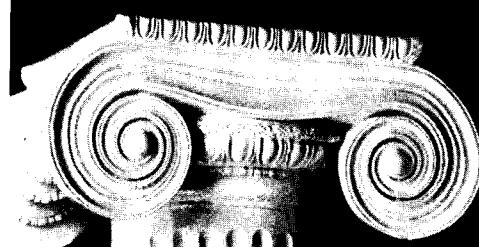
California Redwood Association
405 Enfrente Drive, Suite 200
Novato, CA 94948

Miller Redwood Company
The Pacific Lumber Company
Redwood Empire, Inc.

Circle 157 on information card

WORTHINGTON

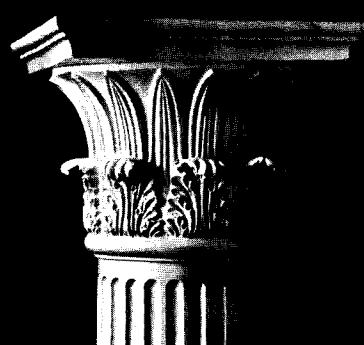
THE PREMIER NAME IN COLUMNS



Catalog \$3.00

WORTHINGTON GROUP, LTD.
P.O. Box 53101 • Atlanta, GA 30355

404-872-1608



Circle 159 on information card

MAIN OFFICE

1735 New York Avenue N.W.
Washington, D.C. 20006
(202) 626-7300

James P. Cramer

Group Publisher

Michael J. Davin

National Sales Manager

Jesse Sims

Production Manager

Cynthia Kellar Duck

Assistant Production Manager

Bernard F. Kroeger

Circulation Manager

Carol Marshall

Circulation Assistant

Nancy Perri

Assistant to the Publisher

Bob Kliesch

Publisher

ADVERTISING SALES OFFICES**New York/Connecticut** (215) 254-9800

Michael J. Davin, National Sales Manager
995 Old Eagle School Rd., Suite 301
Wayne, Pa. 19087

New England (404) 980-6740

James A. Bauschka
6520 Powers Ferry Rd., Suite 200
Atlanta, Ga. 30339

Philadelphia/Pittsburgh (215) 254-9800

George T. Broskey, Eastern Sales Manager
995 Old Eagle School Rd., Suite 301
Wayne, Pa. 19087

Southeast (404) 980-6740

James A. Bauschka
6520 Powers Ferry Rd., Suite 200
Atlanta, Ga. 30339

Midwest (312) 527-1055

Jack E. Bergren
Barbara Mitchel
1337 The Merchandise Mart
Chicago, Ill. 60654
Jack E. Bergren (414) 786-4286
2530 Coach House Dr.
Brookfield (Milwaukee) Wi. 53005

Southwest (314) 569-3210

Richard Grater
1466 Summerhaven
St. Louis, Mo. 63146
West/Northwest (619) 450-6462

James A. Anderson
5830 Oberlin Dr., Suite 300
San Diego, Calif. 92121
Europe 0211-65-2031
Erich Hillerbrand
Media + Marketing Services
Eitelstrasse 32
4000 Dusseldorf 30
West Germany

Circle No.	Page No.	Circle No.	Page No.
55 Adams Rite	42	155 McNichols Co.	156
111 Alucobond Technologies	124-125	129 Monier	142
AIA Foundation	155	137 Monsanto	148-149
1 American Precast	46	149 Nat'l Council of Acoustical Consultants	154
27 American Plywood	23	63 Olympic (Clorox)	48
103 American Plywood	115	15 Pella	12-13
71 Andersen Corp.	52-53	127 Pittsburgh Corning	140-141
73 Andersen Corp.	54-55	49 Pozzi Windows	36-37
3 Armstrong	(Cov. 2)-1	153 Red Cedar	156
5 Armstrong	2-3	89 Republic Aluminum, Inc.	
7 Armstrong	4-5	(Reg. C)	105
31 Associated Foam	25	13 Rixson-Firemark	11
61 Bobrick Washroom Equipment	47	99 Santa Fe Collections	
23 Bradley Corporation	18	(Reg. W)	104-105
39 CPG/Clearprint	31	113 Season-All	126
51 CalComp Systems, Inc.	38-39	119 Sherwin-Williams	130
75 California Redwood	56	123 Sloan Valve	136
157 California Redwood	157	141 Southwall Technologies	151
45 Chicago Faucet Co.	34	Steelcase, Inc.	128A-128B
29 Commonwealth Aluminum	24	9 Steelcase, Inc.	8-9
139 Cultural Foundation, The	150	47 Structures Unlimited	35
161 Curries Manufacturing, Inc.	Cov. 3	69 Stucco Stone	51
41 DuPont-Antron	32	117 Thermador/Waste King	129
135 DuPont-Antron	146-147	17 Velux America	15
91 EFCO	102-103	57 Vinyl Plastics, Inc.	43
147 Fry Reglet	154	19 Von Duprin, Inc.	16
143 Gaco Western, Inc.	152	131 Wirsbo Co.	145
53 General Electric	40-41	159 Worthington Group	157
25 Georgia-Pacific	20-21		
163 Georgia-Pacific	Cov. 4		
133 Glitsa American Inc.	145		
43 Grace, W.R.	33		
95 H.W.H. Corp.(Reg. E)	105		
11 Haws Drinking Faucet	10		
145 Hertz	153		
105 Houston Instrument	116-117		
65 Humane Equipment	49		
107 ISICAD	118		
21 Intergraph	17		
109 Ioline	123		
67 J.P. Stevens	50		
35 Kawneer	28-29		
33 Keuffel & Esser	26		
101 LCN Closers	106		
37 Latco	30		
121 Manville Roofing	134-135		
125 Manville Roofing	139		

Did you miss valuable information offered by advertisers in last month's issue of ARCHITECTURE?

The manufacturers listed below and on the following page were advertisers in last month's issue who are anxious to provide you with their latest product information and literature for your planning needs. To receive this helpful information, just circle the appropriate numbers on the adjacent self-addressed, postage-paid response card.

American Gas Association. Send for full details on advanced gas cooling equipment.

Circle No. 60

American Plywood Assoc. To receive more information on APA-trademark panels, send for our free booklet. It'll help you lower the cost of raising a roof.

Circle No. 102

American Stair-Glide Corp. PORCH-LIFT vertical wheelchair lift is a safe, simple solution to architectural barriers. Send for your free brochure today.

Circle No. 112

Andersen Corp. Custom-sized geometric windows are backed by the nation's largest window manufacturer. Ask your Andersen Distributor about Flexiframe.

Circle No. 28

Avis. Avis designs new discounted rates . . . just for AIA members. Send for more information.

Circle No. 128

Azrock Floor Products. This year, Azrock won a gold and a silver LIFE-Style Award, the two highest design awards in the resilient flooring industry. Send today and receive more information on our lines of flooring.

Circle No. 22

Bethlehem Steel. Send for more information on Galvalume Sheet and its many applications.

Circle No. 86

Boston Society of Architects. Boston Visions, a National Design Competition. Send for more information on registration.

Circle No. 52

Bradley Corp. The many advantages of Bradley's new ACCU-ZONE™ infrared activation control for plumbing fixtures are described in this free four-color brochure.

Circle No. 32

Burns & Russell Co. Spectra-Glaze® wall systems provide an extraordinary focus on design flexibility plus low initial and life-cycle costs. Send today to receive more information.

Circle No. 48

CNA Insurance. Professional liability insurance: CNA and Victor O. Schinnerer & Co. provides limits up to \$15 million.

Circle No. 66

CPG/Clearprint. You can't possibly know how good Clearprint Bond is until you try it. Send today for your free samples.

Circle No. 68

California Redwood Assoc. Natural beauty, durability and stability make redwood the natural choice for creative designs that endure. Send for a copy of the Redwood Architectural Guide.

Circle No. 116

California Redwood. Send for the Specifier's File: a free folio of literature for architects illustrates the beauty and performance of Redwood.

Circle No. 46

Chicago Metallic Corp. is a premier manufacturer of Suspended Ceiling Systems and has served the Architectural/Building industry with innovative products for over 90 years.

Circle No. 96

Columbia Lighting. Columbia Paraboliques—high efficiency fluorescent luminaires that save energy—yet will light your rooms in a no glare comfort for years to come.

Circle No. 34

Commonwealth Aluminium. Commcoat™ Fluorodize® coil, the new surface anodized can't match. Send for more information today.

Circle No. 94

Computervision. Personal Architect: PC-based tool for the entire architectural process from Skimatics, presentations to working drawings.

Circle No. 36

Dornier Medical Systems. Employment position: Systems Planning Supervisor.

Circle No. 114

DuPont Co.-Antron Carpet of Antron Precedent® brings maintenance cost down to earth. Send today to receive more information.

Circle No. 42

DuPont Co.-Antron. In recognition of their outstanding achievement in interior design utilizing carpet made of DuPont Antron® nylon, we congratulate this year's talented winners.

Circle No. 106

Ebco Manufacturing Co. You'll find a full line of Oasis® Radii Water Coolers to compliment your latest design. Send for more details.

Circle No. 118

Eclat Intelligent Systems. Send for more information on ei:Intellifile—a complete Design Library on a silver platter.

Circle No. 8

Fry Reglet. Fry moldings, which for over 20 years have added function and design to exteriors, are now enhancing interiors as well. Send to receive more information.

Circle No. 124

Georgia-Pacific. Send for more information on Dens-Shield™. Tile Backer from G-P. It's not just light. . . . It's water tight.

Circle No. 24

Grace, W.R. Ice & Water Shield offers the most cost-effective, long-term protection against ice damage and windblown rain damage on the market today.

Circle No. 30

Haworth Inc. Introducing PLACES™ from Haworth. PLACES is everything from fanlights to fabrics, wood to glass, and anything else you could ever need to design offices that are intriguing, inviting and individual.

Circle No. 44

Haws Drinking Faucet Co. Sensor Operated—another first from Haws. Send today to receive more information on Haws' new "HANDS-OFF" water coolers.

Circle No. 110

Intergraph. Big system capabilities at a PC price—MicroStation software. Send to receive more information. *Circle No. 4*

ISICAD, Inc. PC-PRISMA delivers what others are promising: big system CAD performance on a PC. Send for complete details. *Circle No. 88*

Japan Digital Laboratory. Send to receive more information on the JDL 850 GL+ plotter/printer. *Circle No. 58*

Koch & Lowy. Create a decor and an atmosphere that they will love. Copernicus. Send to receive more details. *Circle No. 56*

Koppers. If you're concerned with energy savings, and an insulated roof system is part of the plan, Koppers has engineered a system that tops them all. Send to receive more information. *Circle No. 50*

Lutron. Introducing GRAFIK Eye™ Control: preset dimming with a sleek, thin profile design. Send today to receive more details. *Circle No. 132*

Manville-Holophane Division. Holophane Classics, prismatic lighting that puts new life into wood. Send today for more details. *Circle No. 92*

Monsanto Chemical Co. Laminated glass lets you put in the windows you want, and keep out the sound you don't. Send to receive a free copy of our Acoustical Glazing Design Guide. *Circle No. 40*

O'Keefe's Inc. Beauty in Fire Protection . . . Glassprotex provides unrestricted visibility for door, window and wall applications. *Circle No. 18*

Olympic Purdue Assoc. Open competition to participate in a unique, open, international, two-stage competition to design the public environment of a ten block stretch of Los Angeles' famed Olympic Boulevard and two major private office towers in the district. *Circle No. 122*

Peerless Lighting. The unique optics in the Peerless Small Office Fixture makes the entire office seem brighter and better lighted. Send for more information. *Circle No. 98*

Pemisalt Corp. KYNAR® 500-based finishes resist weather and pollution and retain their beauty and integrity for years to come. *Circle No. 30*

Rambusch. The quality Rambusch Downlite, proven cost-effective, is designed for maximum flexibility for the serious lighting specialist and the concerned designer. Send for complete specifications. *Circle No. 90*

Red Cedar Shingle. For free information in specifying Red Cedar shingles and shingles, including permanently treated, fire-retardant Red Cedar where codes apply. Send for your free copy of "Roofing Manual." *Circle No. 100*

Rixson-Firemark. Our surface closers combine a precise door control mechanism with clean, geometric lines and a durable metal cover for uncompromised plated finishes. *Circle No. 130*

Sanyo Fisher (USA) Inc. The Sanyo Split System provides quiet, vibration-free heating and cooling without ductwork or windows. No other HVAC System offers the flexibility of the Sanyo Split System. *Circle No. 108*

Schlage Lock. Schlage is forever setting examples for the hardware industry when it comes to innovation, quality and durability. Send for a copy of our new full line catalog. *Circle No. 38*

Sherwin-Williams. Introducing a new color specifying system called ColorAnswers. Designed to make color specifying easier for professionals. Send to receive our new brochure. *Circle No. 70*

Sloan Valve. Royal, Dolphin, Crown, Naval, flush valves; deadpan washers; vacuum breakers; electronic lavatory and sink faucets. *Circle No. 20*

Star Sprinkler Corp. Provides a full line of sprinkler heads designed to blend quietly with their surroundings and still meet your toughest standards for fire protection. Call 1-800-558-5236, in WI call 1-414-769-5500. *Circle No. 62*

Steelcase. Sensor®—Stunning performance. Now—new models, fabrics and shell colors. Send to receive more information. *Circle No. 26*

Summitville Tile. Summitville ceramic tile is everywhere quality is needed, from expert service and exceptional products to on time delivery. Send to receive more information. *Circle No. 54*

U.S.G. Interiors Inc. A leading worldwide supplier of complete interior systems packages for the commercial interiors market including ceiling systems, access floors, and movable partitions. *Circle No. 2*

U.S.G. Interiors Inc. Send for more information on our complete line of readily available relocatable walls that range from conventional to high-tech. *Circle No. 6*

U.S.G. Interiors Inc. Send to receive more information on the AURATONE Premier Ceiling Collection. Top acoustical performance. In styles unique as your signature. *Circle No. 10*

Varitronic Systems Inc. If our lettering system can improve the printed communications of the world's most sophisticated communications companies, imagine what it could do for yours. *Circle No. 126*

Vinyl Plastics, Inc. Now, when you think sheet vinyl flooring think VPI. Custom Royale™ and Sure-Trac™ . . . lasting beauty on a roll. *Circle No. 64*

Vistawall Architectural Products. Vistawall's revolutionary new system, MorFront, will color the way you think about storefronts. Send for more information. *Circle No. 104*

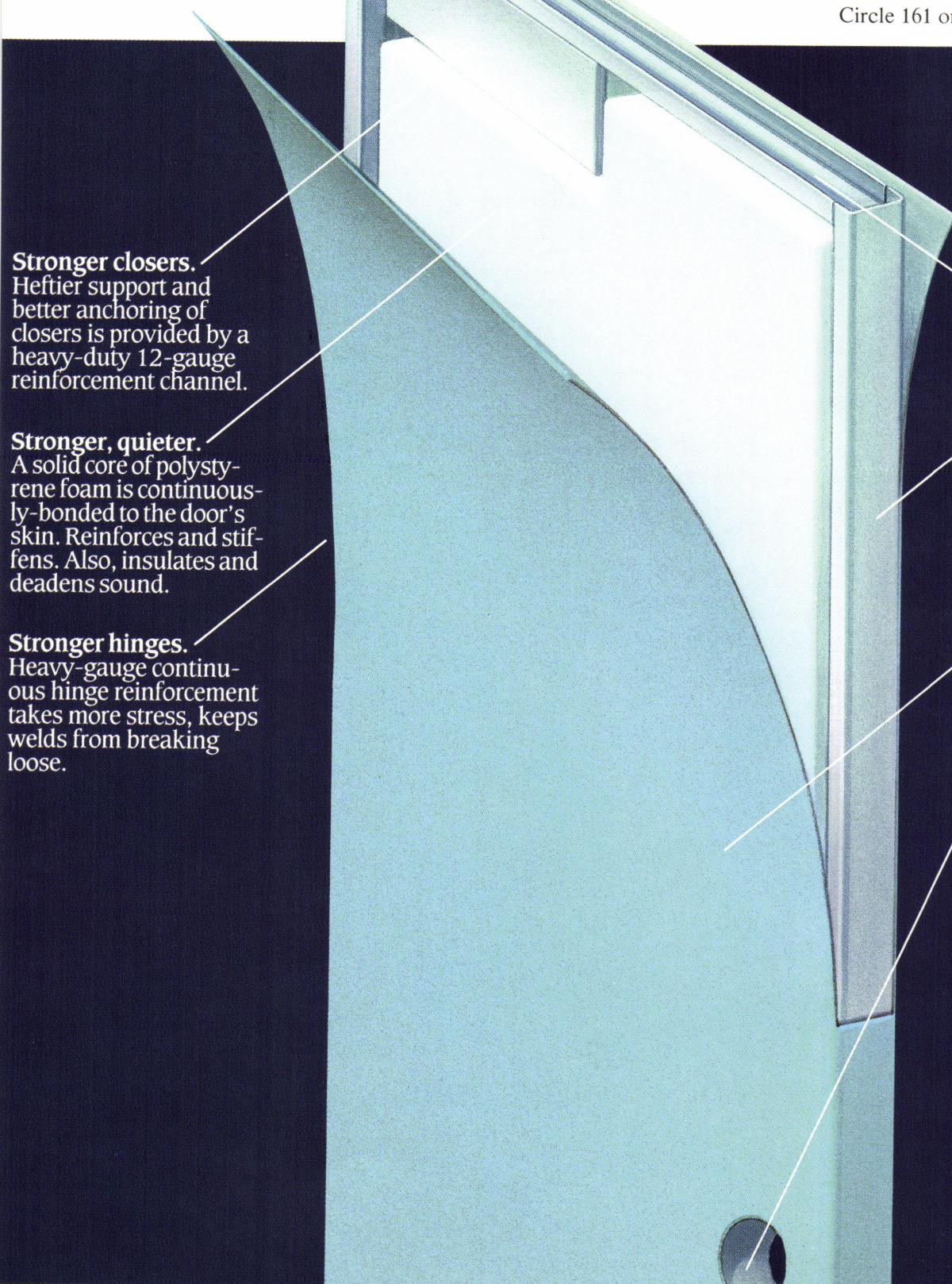
A breakdown of why Curries doors don't break down.

As you can see, a Curries hollow metal door has its strong points.

At the hinges. In the closer area.

Continuous U-shaped channels around the entire door perimeter.

All of which is welded into one, solid unit.



So you can be sure your toughest requirements will be met. For both exteriors and interiors. In any commercial, industrial, institutional or educational application.

You can also be sure your toughest delivery deadlines will be met. Whether your order is pre-engineered or custom. Or both. It'll be on time. Correct.

Complete. No excuses.

Call your local Curries distributor today. He's got inventory,

ready to go. And he can customize your order locally. He can also take care of your finish hardware requirements.

He's in the Yellow Pages under "DOORS" or "DOORS-Metal". Or see Sweet's 08100-CUR. Curries Company, 905 South Carolina, Mason City, IA 50401.

© Curries Company 1988 CU-2288

CURRIES
ESSEX
INDUSTRIES INC.



Circle 161 on information card

JUST A FEW SIGNS OF OUR BUILDING SUCCESS WITH DENS-GLASS® GYPSUM SHEATHING.

A Lot Of Big Names Have Discovered The Big Benefits Of Dens-Glass.

The problems of wind, weather and dampness have become virtually obsolete with Dens-Glass® gypsum sheathing from Georgia-Pacific. This revolutionary gypsum sheathing stands up to job-site weather hassles and hazards like no other product on the market.

When exposed to weather, ordinary paper-faced gypsum sheathing can delaminate, sag and warp, resulting in expensive replacement costs. Dens-Glass, however, is manufactured with unique fiberglass mats on the front and back of a water-resistant core. This

design makes it the only gypsum sheathing panel durable enough to offer a six-month limited warranty** against the weather's damaging effects. And since Dens-Glass contains no paper, it provides unmatched fire resistance as well.

Because of its unique properties, Dens-Glass has become the sheathing of choice for a large number of

Dens-Glass Gypsum Sheathing

DESCRIPTION:

Water-resistant gypsum core, fiberglass mats front and back.

SIZES:

1/2" and 5/8" thick; 4' x 8', 4' x 9'; 4' x 10'.

APPLICATIONS:

Sheathing; soffits; exterior ceilings. Ideal substrate for exterior insulation finish systems and other exterior finishes.

INSTALLATION:

Can be applied horizontally or vertically.

FIRE RESISTANCE:

Independent tests produced zero flame spread; zero smoke developed*.

WARRANTY:

6 month limited commercial warranty**

commercial architects and contractors. On building projects for big names such as Macy's, IBM, Lechmere Holiday Inns, and Embassy Suites, the dimensional stability and resiliency of Dens-Glass has been perfect for a variety of exterior applications.

Discover what a lot of astute architects and builders already know: Dens-Glass is the absolute best at making the problems associated with exterior sheathing obsolete. It's a sure sign of your concern for superior, innovative building design—and that makes you look good, as a superior, innovative building designer.

For complete Dens-Glass exposure test results, product information, warranty, samples and a brochure outlining Dens-Glass application details on a variety of recent projects, call 1-800-225-6119. In Georgia, call 1-404-521-5716. Or write:

Georgia-Pacific, Dept.
A-DGP, P.O. Box 2808,
Norcross, Georgia 30091.

*ASTM E119 Fire Test of Building Construction and Materials; ASTM E48 Surface Burning Characteristics of Building Materials.

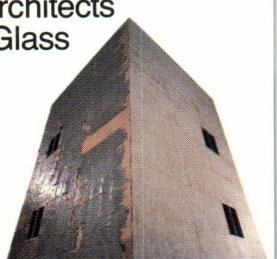
MORE POWER TO YOU! is a trademark, and Dens-Glass

is a registered trademark, of Georgia-Pacific Corporation.

© 1988 Georgia-Pacific Corporation. All rights reserved.

**See limited commercial warranty, available from

Georgia-Pacific, for its terms, conditions and limitations.



The long-term effects of weather on conventional gypsum sheathing, left; and on Dens-Glass, right.

Georgia-Pacific 
**MORE POWER
TO YOU!**

Circle 163 on information card

